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Give Your Virtualized Environment A Speed Boost

OCZ's VXL Software & Z-Drive R4 SSDs Help Eliminate Data Bottlenecks

Virtualization is designed to free up server resources and use them more efficiently. It's great technology for backing up your data but also for running virtual machines, which can save money from a desktop, laptop, or software purchasing point of view. However, if you don't have hard drives with high read and write speeds and a fast connection between them, you won't get the most out of virtualization and could actually be introducing data transfer barriers.

"When multiple servers are connecting to the same SAN arrays, serving hundreds of virtual machines in the data center, all those machines are transferring data to and from the same arrays and in many times to the same volumes," says Allon Cohen, vice president of marketing and product management, software solutions at OCZ Technology. "The SAN becomes the bottleneck since each machine is running sequential workflow. This workflow is blended in the array and translated to random access, which impacts the performance dramatically."

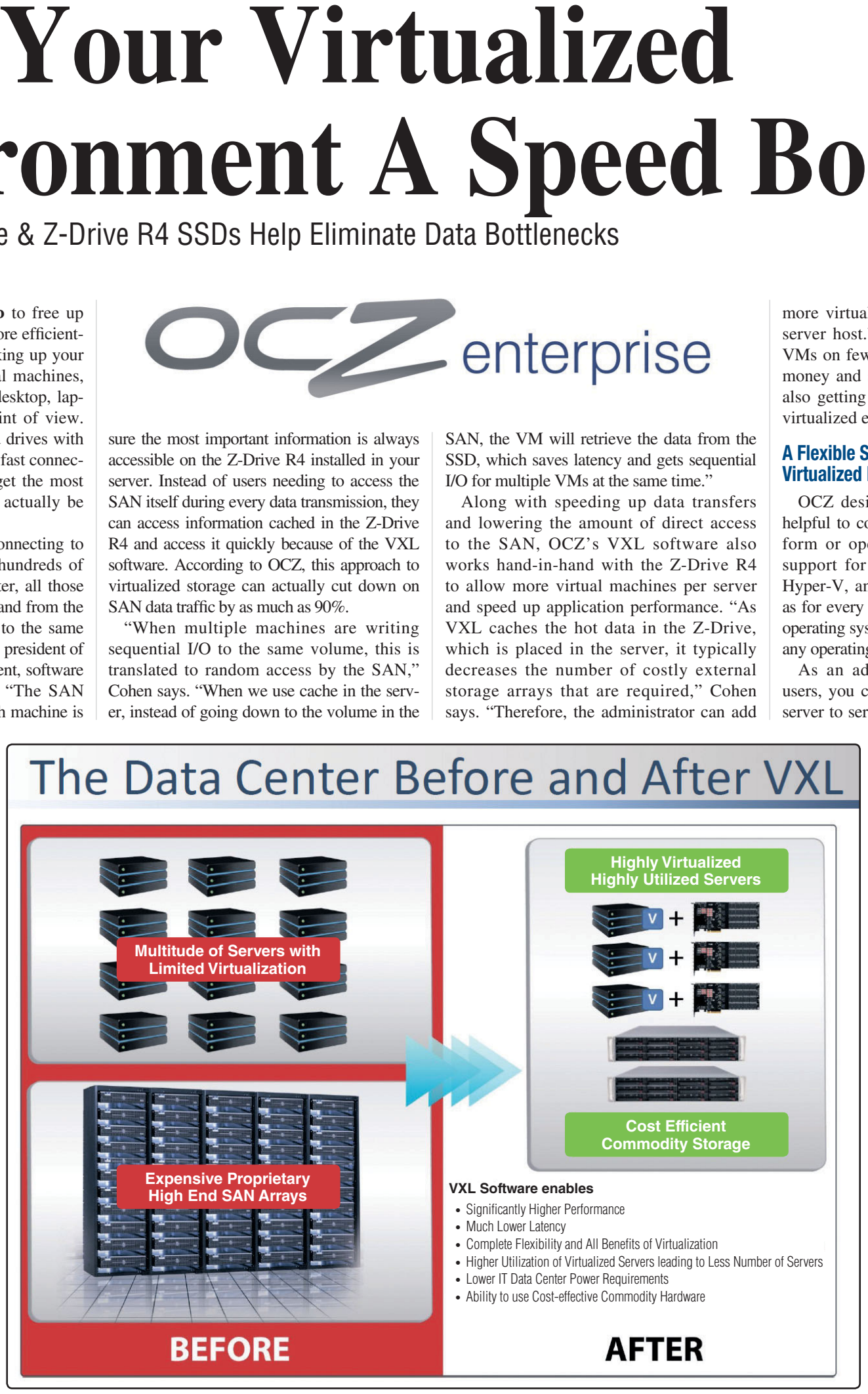
But there is a simple solution to the virtualization bottleneck problem. By introducing solid state drives, such as one from the OCZ Z-Drive R4 PCI-E series of SSDs, you can instantly improve the speed of your virtualized environments. But OCZ is taking virtualization and data transfer speeds to new levels by also offering its VXL flash caching and storage virtualization software, which helps move data to and from Z-Drive R4-based servers at a much faster and steadier pace than traditional storage arrays.

VXL Removes The Bottleneck

OCZ's VXL Storage Acceleration software is unlike other virtualized storage solutions because it actually monitors the data that is being sent to and from virtual machines and essentially prioritizes it, making sure the most important information is always accessible on the Z-Drive R4 installed in your server. Instead of users needing to access the SAN itself during every data transmission, they can access information cached in the Z-Drive R4 and access it quickly because of the VXL software. According to OCZ, this approach to virtualized storage can actually cut down on SAN data traffic by as much as 90%.

"When multiple machines are writing sequential I/O to the same volume, this is translated to random access by the SAN," Cohen says. "When we use cache in the server, instead of going down to the volume in the SAN, the VM will retrieve the data from the SSD, which saves latency and gets sequential I/O for multiple VMs at the same time."

Along with speeding up data transfers and lowering the amount of direct access to the SAN, OCZ's VXL software also works hand-in-hand with the Z-Drive R4 to allow more virtual machines per server and speed up application performance. "As VXL caches the hot data in the Z-Drive, which is placed in the server, it typically decreases the number of costly external storage arrays that are required," Cohen says. "Therefore, the administrator can add more virtual machines to run on the same server host." And because you have more VMs on fewer storage arrays, you can save money and space in your data center while also getting the boost in performance your virtualized environment needs.



A Flexible Solution For Almost Any Virtualized Environment

OCZ designed the VXL software to be helpful to companies using almost any platform or operating system. VXL features support for the VMware ESX, Microsoft Hyper-V, and Citrix Xen platforms as well as for every variation of Windows and Linux operating systems. VXL can also be used with any operating system with a virtualized layer.

As an additional benefit for VMware users, you can move virtual machines from server to server and still have access to your crucial cached data. For all users, VXL features "agentless connectivity," which means you won't need to install VXL on each individual VM to receive the caching benefits. And because the VXL software is designed to work with the Z-Drive R4 series, OCZ made sure it works with the CloudServ, half-height, and full-height versions of its enterprise SSDs.

By combining OCZ's Z-Drive R4 SSDs and VXL software, companies can take full advantage of virtualization. You can consolidate servers by replacing older hard drives with smaller SSDs with the same amount of storage but even more speed. And you can use the VXL software to cache data, accelerate applications, and make sure that employees or customers always have access to the information they need. P

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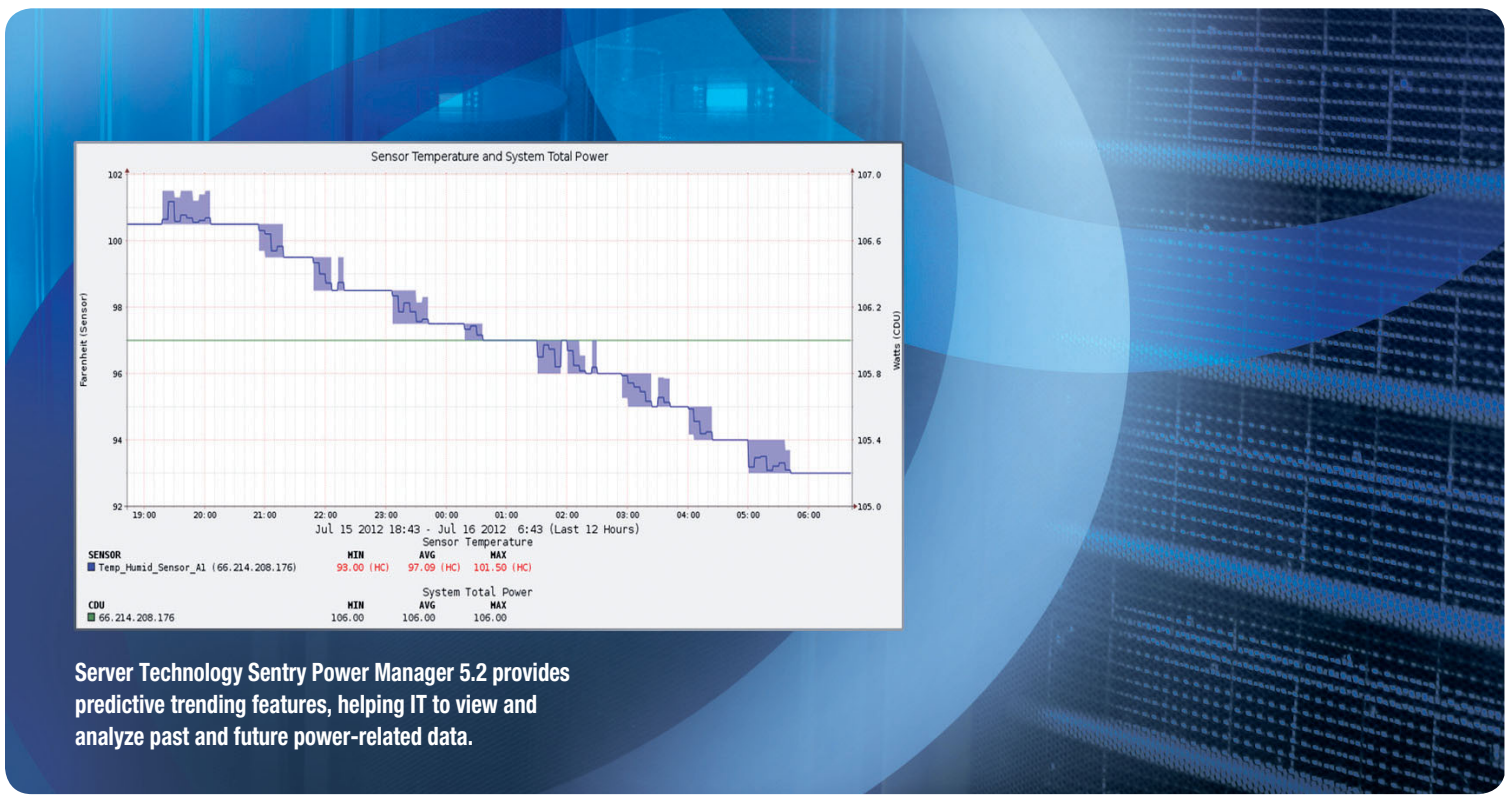
Power-Related Trending Analysis, Capacity Planning & More

Server Technology Sentry Power Manager 5.2 Makes It Easier To Manage Rack-Based PDUs



Server Technology Sentry Power Manager 5.2 provides predictive trending features, helping IT to view and analyze past and future power-related data.

When Server Technology released its game-changing Sentry Power System earlier this year, it unleashed the means to tightly bridge the company's family of CDUs (cabinet power distribution units) with its SPM (Sentry Power Manager) power-monitoring and management software. The result was major step forward in helping IT simplify the management of rack-based PDUs by providing a single system to manage power across an entire enterprise. Plus, through such features as SNAP technology, Sentry Power System enables true plug-and-play auto configuration and discovering of PDUs, which IT can manage from a single-pane management console with SPM.

Now, with the recently released SPM 5.2, Server Technology is further unifying the PDU-management relationship by introducing several new features, including those providing predictive trending analysis, capacity planning, and redundancy functionality. Available both in Server Technology's SPM appliance and virtual options, SPM 5.2 was beta tested at several leading global companies and is now available. Users can also download a free demo version.

Predicting Success

"Sentry Power Manager is really the tool that sits on top of the network and monitors the PDUs," says Calvin Nicholson, senior director of software and firmware. "The value in the tool for a lot of cases is where you aggregate, consolidate, and bring in all the valuable power and environmental information from all the PDUs on the network and all over the data center in cabinets. We've really worked hard to tightly couple the PDUs with SPM."

The trending capabilities available in SPM 5.2 are an example of how Server Technology is working to make power-related information more valuable and useable for IT. SPM 5.2 provides a predictive trending analysis feature that uses various cabinet traits, including total system, circuits, lines, locations, zones, and temperature, to enable IT to view and analyze past and future power-related data, essentially presenting IT with a valuable diagnostic tool. Nicholson says if temperature or power usage is trending to go above a set threshold, "we can predict that in the trend, and we can actually show the threshold values on the trend itself." IT can configure SPM 5.2 to send an alert in the event a certain condition is trending to exceed a threshold, taking the guesswork out of the equation.

Beyond accessing trending-related data for numerous conditions such as power, humidity, and temperature, IT can take two different trend types and overlay them. As an example, Nicholson says, IT could overlay the power and temperature trends for a cabinet to "see how the power usage is affecting the overall temperature." The ability gives IT "valuable information in the understanding that if I keep loading up this cabinet or I keep adding more devices, I'm obviously going to have to add additional cooling," Nicholson says.

Server Technology focused on making certain that each trend provides an historical mid-max average, Nicholson says, something that's beneficial if IT, say, is considering where to add a device to a cabinet. "You probably want the maximum power load over a much longer period of time to see if it's really safe to make that change or any other change," Nicholson says. "So, we made that very clear with mid-max average values on the trending."

Better Planning

SPM 5.2's two other primary additions provide capacity planning and redundancy functionality. The capacity planning tool lets IT run reports to more easily pinpoint available space and power. The tool's aim, Nicholson says, is "answering the age-old question, 'I have a new device, I want to put it in my data center, where do I put it?'" Rather than physically tour the data center seeking out empty space, he says, SPM 5.2 reports allow IT to view where available power exists to install a new device. "That really should help people save a lot of time when provisioning new servers, as an example," Nicholson says.

The redundancy tool provides IT a visual representation of how redundancy looks within a cabinet, detailing if power to the cabinet will keep devices operational if an A or B power source goes down. Nicholson says that, by knowing a cabinet's capacity, overall power usage, and the typical safety factors related to devices' power rankings, SPM 5.2 can provide an indication about "what cabinet you should look at to make sure it is redundant before some type of fault happens and the whole cabinet goes down."

SPM 5.2 also includes a new email feature that's tied to Server Technology's support team. When a customer initiates a support-related email to the team, for example, SPM 5.2 can now collect all the relevant data the team requires to provide support, thus alleviating a customer from time spent on the phone answering questions or hunting down various bits of information. "We've combined a lot of process and system information that we can roll up into a nice bundle," Nicholson says. "SPM can email that back to our support team, and we can take a look at that information as a diagnostic or kind of troubleshooting." P

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The NeweggBusiness site also includes other valuable tools aimed at helping with product purchases. Universal Power Supply, Ink & Toner, Memory, and Cable finder tools help by providing basic information, links, and graphics to pinpoint what you're looking for and ensure you get the right product the first time.

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> "NeweggBusiness offers its SMB customers a wide product selection, competitive prices, great customer service, and most importantly, it's conveniently available 24 hours a day, seven days a week."
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FEATURED PRODUCT

Performance & Reliability

Aberdeen LLC's New Stirling 277 Is VMware-Ready & Ready To Be Seamlessly Integrated Within Virtual Infrastructures

Reputations aren't just handed out. They're earned over time by gaining the trust of customers and partners through consistent results, leading performance, and long lasting reliability. Aberdeen LLC has earned its well-deserved reputation within the industry as a manufacturer of affordable, durable, highly scalable, award-winning general-purpose servers and storage servers by developing such trust. For more than 20 years, Santa Fe Springs, Calif.,-based Aberdeen has been building servers tailor made to customers' exact requirements and specifications in order to meet their present and future needs. Over that time, Aberdeen has also met and surpassed the criteria set down by its partners, including VMware.

Solidified Reputation

The new Aberdeen Stirling 277, a 2U VMware-Ready server powered by the Intel® Xeon® Processor E5-2600 series CPUs and built on the Intel Romley platform, is but one of countless examples of how Aberdeen has solidified its reputation.

"The Stirling 277's VMware-Ready designation means the server can interoperate seamlessly within a virtual infrastructure and that it has met VMware integration and interoperability standards," says Mike McArthur, an engineer at Aberdeen. "Each VMware-Ready product and solution category requires successful completion of specific integration and interoperability testing," he says.

"Aberdeen's customers can rely on our VMware-Ready products and solutions to be reliably interoperable within a vSphere environment and to deliver unique features with significant value," says McArthur, who goes on to say, "the designation signifies VMware's highest level of endorsement for products and solutions created by established partners."

> "Aberdeen's customers can rely on our VMware-Ready products and solutions to be reliably interoperable within a vSphere environment and to deliver unique features with significant value."
>
> *- Aberdeen's Mike McArthur*

Aberdeen Stirling 277

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- VMware ESXi 5.0 and FT (Fault Tolerance) Ready
- Seven free PCI-E 3.0 slots (Six x8/One x 16)
- Dual Intel® X540 onboard 10GBase-T (1GBase-T compatible) Ethernet
- Dual Intel® Xeon ® Processor E5-2600 series CPUs
- Up to 512GB DDR3 memory
- Most popular 2U density; LP format to accommodate more add-on cards
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- Integrated IPMI 2.0 with dedicated LAN for remote out of band management
- 8 SAS or SATA drive bays with integrated LSI2208 full SAS controller
- Easily expandable with affordable JBODs
- Locking front bezel option

Beyond being VMware-Ready, the Stirling 277 is also certified for vSphere Fault Tolerance, meaning the potential of data loss due to disruption is eliminated. The Stirling 277 creates a live shadow instance of a virtual machine that is in virtual lockstep with the primary instance. According to Aberdeen, vSphere Fault Tolerance provides zero downtime, zero data loss, and continuous availability for applications without the cost and complexity of traditional hardware or software clustering solutions.

Overall, the Stirling 277's hardware components make it well suited for businesses running 10 to 20 virtual machines on a single ESXi server. The power and efficient performance that the Intel® Xeon® Processor E5-2600 series CPUs provide means the Stirling 277 is also well suited for cloud computing tasks. Aberdeen offers the Intel® Xeon® Processor E5-2600 series in a dual socket configuration. Built on Intel's 32nm manufacturing technology, the Intel® Xeon® Processor E5-2600 helps companies meet the demands of developing efficient, secure, and high-performing data center infrastructure.

Better Hardware, Better Abilities

"Among the Stirling 277's standout features," says Niso Levitas, manager of research and development at Aberdeen, "is support to configure more memory (up to 512GB), something that is important for virtualization. Usually the bottleneck on VMware servers is the memory, not CPU. You can add many more virtual machines with increased memory capacity."

Aberdeen makes acquiring a virtualization platform simple and affordable, as well as free of fancy terminology, by offering two VMware virtualization starter kits. Both kits include two certified Stirling 277 servers providing shared storage and licensing abilities, hardware redundancy and VMware's High Availability features. An Essentials Plus kit includes four CPUs, 128GB RAM (expandable to 192GB) and support for up to six CPUs. A Standard Acceleration kit includes four CPUs, 128GB RAM (expandable to 256GB) and support for up to eight CPUs.

Multiple virtual machines typically bring about heavy traffic-management demands that servers must handle in order to realize the full benefits of virtualization. The Stirling 277's use of VMDq technology, or Virtual Machine Device Queues, helps to boost the network I/O by offloading processing work from the hypervisor.

Integrated Intelligent Platform Management Interface (IPMI) offers a way for administrators to remotely access and view a server's hardware status, receive an alarm if a failure occurs, and power cycle a system that isn't responding.

Other notable features of the Stirling 277 include dual onboard RJ45 10GbE ports and support for PCI-E 3.0. The 10GbE ports are backward compatible with 1GbE networks and infrastructure, enabling customers to utilize their existing network and switches, and then benefit from 10GbE when they are ready. Seven available PCI-E 3.0 slots are built in, providing ample slots to add fiber storage ports, 10GbE or iSCSI ports. The Stirling 277 can also utilize SAN storage, while supporting up to 32TB storage in the server itself for smaller setups, or to utilize the Virtual Storage Appliance (VSA) features introduced with VMware Vsphere 5.0.

Guaranteed Quality

As with every barebones and customized general-purpose and storage server Aberdeen sells in form factors covering 1U to 8U, the Stirling 277 ships with Aberdeen's industry-leading five-year warranty that guarantees it to be free of material defects during the warranty's duration and free of workmanship defects during the server's lifetime.

Before shipping, every Stirling 277 server is put through a comprehensive burn-in process, as well as a thorough Quality Control/Quality Assurance routine. Before and after shipping, Aberdeen has VMware-certified sales and technical staff available to help customers best apply virtualization in their environment to cut their costs and simplify their operations. P

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FEATURED PRODUCT

Evaporative Cooling Small Enterprises Can Afford

Mestex Aztec Evaporative Cooling Systems Come Ready To Install & Control

If ever there were a cooling system suited for enterprises seeking energy-efficiency savings without sacrificing performance or scalability, it's the Aztec Evaporative Cooling System from Mestex, a Dallas-based marketing/manufacturing division of Mestek.

Traditionally, small to midsized enterprises have had the fewest options for reducing PUE, OPEX, and CAPEX costs, says Mike Kaler, Mestex president. This includes the evaporative cooling solutions now being commonly deployed as custom systems typically too pricey for smaller deployments.

The Aztec system provides self-contained, rooftop-installable, "bite-sized" units pre-engineered and preconfigured with digital control and monitoring software. Beyond deploying the Aztec on a need-only basis, companies can integrate an Aztec unit into an existing ventilation system (either as a standalone unit or into an air-handling unit). The Aztec works with and without underfloor constructions.

Easy Does It

The Aztec can provide indirect evaporative, indirect/direct evaporative, or evaporative cooling with DX (direct expansion) or ChW (chilled water) supplemental cooling. It delivers indirect evaporate cooling via a cooling tower and chilled water coil integrated in the unit, an approach that simplifies installation and data center infrastructure requirements. Integrating the cooling tower also enhances data center redundancy, Kaler says, as a cooling tower failure would impact only one Aztec air handler, not other data center units.

"Aztec systems are sometimes referred to as 'plug and play' because of their one-piece, pretested configuration, which only requires connection of water and power to become functional at the job site," Kaler says. "While startup commissioning is required for any HVAC system, the time required for this task is greatly reduced on the Aztec system because it was already set up and tested at the factory, only requiring adjustment in the field for local site conditions."

The Aztec is also the only evaporative cooling system that ships with a fully tested integrated digital control system, Kaler says. Manufacturing and testing the system in-house enables Mestex to deliver the Aztec ETL-approved and meeting normal local build codes.

Beyond managing the unit's temperature and pressure control via up to five cold-aisle temperature and one cold-aisle pressure sensors per unit, the digital control system monitors operation and provides service notices, temperature trend recording, and optional GUIs accessible onsite or via Internet access.

"The integral DDC controls can eliminate, or defer, the need for a third-party DCIM package, and the plug-and-play configuration reduces data center infrastructure costs and build-out time," Kaler says. "You could correctly think of the Aztec system as a containerized evaporative cooling system."

Excellence In Energy

Companies can configure the Aztec to combine indirect evaporative cooling and "fresh air cooling," Kaler says, for "the most energy- efficient option available for data center designers who want to achieve a very low PUE."

One self-contained Aztec unit can support the environmental requirements of up to 18 42U racks operating at maximum levels. As server capacity increases, IT can simply install additional Aztec units without needing to perform major renovations or component purchases.

"An Aztec system is actually ideal for the data center that isn't fully populated from the outset," Kaler says. Because each Aztec system is essentially a self-contained cooling module requiring only a water and power connection, IT can simply add additional Aztec units as the data center grows. P

Mestex Aztec Evaporative Cooling System

(214) 819-5262
www.mestex.com

Can be configured to provide indirect evaporative, indirect/direct evaporative, or evaporative cooling with DX (direct expansion) or ChW (chilled water) supplemental cooling.

MESTEX
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FEATURED PRODUCT

Double Your Data Center Capacity

Power Assure PAR4 & EM/4 Help Collect & Analyze Data So You Can Improve Efficiency & Performance

How much power do your servers use? Are they using that power efficiently? How do you know? Those are the types of questions the Power Assure PAR4 measurement service can help answer. And, when combined with Power Assure EM/4 data center infrastructure management software, you'll be able to quickly visualize, identify, and remedy inefficiencies in a comprehensive way.

Better Efficiency

Energy efficiency isn't new to data centers, and they can become more efficient through two major areas, according to Clemens Pfeiffer, CTO and founder of Power Assure.

The first area is in the energy consumed by IT resources, especially servers. Current server utilization rates hover about 10% for dedicated servers and 20 to 50% for virtualized servers, Pfeiffer says. "The only thing servers do when they are underutilized, which can be up to 80% of the time, is waste energy—and money," he says.

The second area where data centers can achieve greater efficiency is in the need to dissipate heat created by IT resources. In most data centers today, cooling consumes about as much energy as the IT equipment, Pfeiffer says. Adopting a hot aisle/cold aisle configuration and raising the cold aisle temperature to 80.6 degrees Fahrenheit are a start, but doing so can create the risk of hot spots forming without careful and continuous monitoring.

Powerful Combination

The PAR4 measurement service tells you exactly how much power a server uses at four power levels: powered off, idle, fully loaded, and at peak. "This is invaluable data—not estimates—collected using the Underwriters Laboratories (UL) tested PAR4 methodology (UL2640 standard)," Pfeiffer says.

By making decisions based on these "true consumption numbers," Pfeiffer says, enterprises "can often double data center compute capacity and eliminate the need for building costly new facilities."

At first glance, Power Assure EM/4 may look like any other DCIM system. It supports both the industry-standard and popular proprietary protocols used to measure power consumption, which means there are no special agents to install or extra wires to run to measure power at the building, circuit, and device level, Pfeiffer says. EM/4 also measures environmental conditions, such as temperature, humidity and airflow, throughout the data center.

But EM/4 sets itself apart through advanced capabilities such as auto-discovery, real-time monitoring, capacity planning analytics, BMS (building management system) integration, comprehensive reporting, and the ability to automate processes in cooperation with load-balancing or virtualization systems to continuously match server capacity with demand.

"The ability to match server capacity with actual demand in real-time is unique to EM/4," Pfeiffer says. Plus, he says, EM/4 accommodates the needs of both IT and facility managers as it's available with basic, advanced monitoring, and enhanced analytic modules targeted at the specific needs of either the IT manager or the facility manager.

"To prevent data centers from being outgrown by exhausting available space, cooling, or power (every data center manager's worst nightmare) it is necessary to both minimize and constantly manage the energy consumed," Pfeiffer says. "The combination of EM/4 and PAR4 are unique in their ability to enable IT and facility managers to accomplish both tasks easily and effectively." P

Power Assure EM/4 & PAR4

(888) 225-1575
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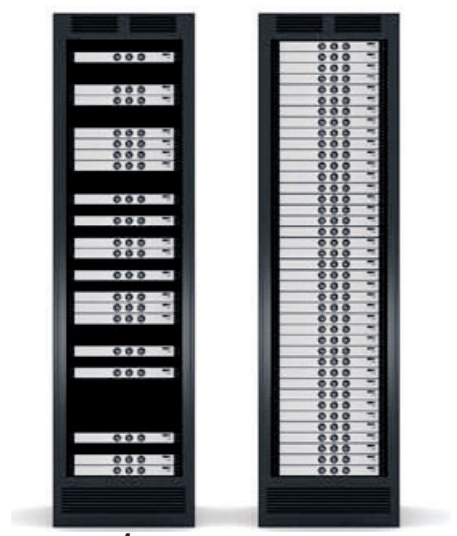
By using both the EM/4 data center infrastructure management tool and PAR4 measurement service, data centers can make the best use of their available space, power, and cooling.

POWER ASSURE



By using PAR4, this 10kW rack was able to go from having the power maxed out while only half full to being full and still having power left to spare.

FEATURED PRODUCT

Products Prepared For Real-World Use

Server Technology & PDUs Direct Know The Importance Of Product Testing

Most companies perform some form of testing on their products to ensure that they are in good working condition before being shipped to customers, but Server Technology, experts at producing the highest standard of quality PDUs, goes above and beyond basic testing with its 100% Product Performance Testing. The process includes putting each product through a series of tests designed to push it to its limits, which results in high-quality products with low failure rates.

The reason Server Technology decided to perform these tests on every product for 27 years is much simpler than you may think. "The worst thing for a customer is to open a box, plug a product in, and it doesn't work," says Jim Scherr, director of sales and operations at PDUs Direct (www.pdusdirect.com), the master distributor of Server Technology PDUs. "The overarching reason for doing the power testing is simple: to make sure that any product that leaves our building functions as per designed and meets all the criteria of the customer. We're committed to always providing the quality and value that our customers expect."

The first and foremost benefit of Server Technology's 100% Product Performance Testing is that customers can have peace of mind knowing that the products powering their mission-critical devices work as designed and have less of a chance to fail, according to Scherr. Server Technology's major goal is to help keep their customers' physical infrastructure up and running so they can be as productive as possible.

Testing From Beginning To End

With 100% Product Performance Testing, it isn't just a matter of testing a product after it's completely built. In fact, these products are tested throughout the manufacturing process to make sure any possibly defects or other issues are caught early on to prevent a potential domino effect later down the line. And if a product fails at any step along the way, changes are made and the testing process at that level starts all over again. "It's good for us to know early on if there's a problem because we can fix it here at our manufacturing facility, which is so much better and quicker than trying to fix issues or problems in the field," Scherr says.

The variety of tests performed on the products run the gamut from thermal, shock, and vibration testing to compliance with ATE (Automated Test Equipment) tests, as well. It all leads to the final tests, which are designed to test the product in real-world applications and make sure they are ready for the customer once and for all. All tests are performed in a state-of-the-art Power Lab.

"All products are tested at all stages, starting from when the product is in its infancy to when it has become finalized," Scherr says. "Just before it goes out the door after the final modification, we test it once again. We don't just test it by plugging it in and making sure the lights come on; we plug it in and we load every receptacle. We just want to make sure that, functionally, the product fully works under the conditions it will see in the future."

A Partnership Between Manufacturer & Customer

PDUs Direct sells a wide variety of Server Technology products, including basic, switched, and metered Rack PDUs, and all of them go through the 100% Product Performance Testing process. It's a combination of well-built, easy-to-use products and a degree of testing that isn't often seen in the IT industry. Current customers notice this because, according to Scherr, they "really appreciate the due diligence being done prior to them getting the products."

And Server Technology, along with PDUs Direct, sees its relationship with customers as a mutual partnership, which is why 100% Product Performance Testing was put into practice in the first place. These companies strive to provide the best products available with the highest amount of testing and lowest failure rates so that their customers can focus on running their businesses instead of fixing infrastructure issues.

"The quality, reliability, and performance of our products are the most important benefits—to our customers and to us," Scherr says. "It's what we've built the company on and what we stand for every day." P

Server Technology 100% Product Performance Testing

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Tests products at every step, from inception to production to sale, to ensure the highest quality and lowest failure rates possible.

FEATURED PRODUCT

Instant Search, New Features

dtSearch Version 7.70 Beta Enhances Document Filters, Supporting A Range Of Data Types

dtSearch Corp. has taken its industry-leading enterprise and developer text retrieval to a new level with its Version 7.70 beta release. The beta enhances dtSearch's proprietary document filters. These provide data parsing, conversion, and extraction in the dtSearch product line, and they are also available for separate licensing. The filters support Office documents, emails plus nested attachments, static and dynamic online data, and databases.

Instantly Search Terabytes Of Text

dtSearch products make it easy to instantly search terabytes of text, spanning directories, databases, online data, and emails. The products can index over a terabyte of text in a single index, and create an unlimited number of indexes and search them. Indexed search time is typically less than a second, even across terabytes of data. Online indexed searching operates in a "stateless" environment, supporting unlimited concurrent search threads.

Among the most important features of the dtSearch product line are its support for 25+ full-text and fielded data search types, including special forensics search options. In addition, dtSearch products offer federated or distributed searching with integrated relevancy ranking across any number of different data repositories.

Document Filters

dtSearch's proprietary document filters support a broad range of data types:

- Office documents: MS Office, OpenOffice, RTF, PDF, etc.
- Emails: MS Exchange, Outlook, Thunderbird, etc., all with nested attachments
- Compression formats: ZIP, RAR, GZIP/TAR, etc.
- Web-ready data: HTML, XML/XSL, and PDF
- Dynamic data: PHP, ASP.NET, CMS, SharePoint, etc.
- Databases: SQL including BLOB data (through the dtSearch Engine APIs), MS Access, XBASE, XML, CSV, etc.

The document filters support parsing of all of the above data types as well as text extraction and/or conversion to HTML as required for browser display with highlighted hits.

Embedded image enhancements. Version 7.70 extends the document filters to add image support to Word (.doc/.docx), PowerPoint (.ppt/.pptx), Excel, (.xls/.xlsx), Access (.mdb/accdb), RTF, and email files, including Thunderbird (mbox/.eml), and Outlook (.pst/.msg) files. The new version displays these formats with highlighted hits in context with both text and images.

Multi-level nested file enhancements. The dtSearch document filters also support documents and images in multi-level nested configurations. For example, Version 7.70 supports not only viewing images in an email file, but also images in a PowerPoint embedded in a Word document attached as a zipped file to an email message. A new "object extraction" API lets developers navigate through the structure of each embedded object as a hierarchy, and optionally extract each object.

Other Features

Spider. The Spider works with local and remote, static and dynamic Web content. Hit-highlighted searching can span any level of site depth, across any number of public and private or secure sites, including support for log-ins and forms-based authentication. The Spider is built into the dtSearch product line and accessible through a .NET API for programmers.

Developer APIs. The dtSearch Engine SDKs include native 64-bit and 32-bit, Windows and Linux, C++, Java and .NET (through 4.x) APIs. For customers in need of data parsing, conversion, and extraction only, the document filters are available for separate OEM licensing. P

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Web with Spider
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also available for separate licensing

Instantly Search Terabytes of Text

(800) IT-FINDS (800/483-4637)
www.dtsearch.com

Version 7.70 Beta is an updated version of the entire dtSearch lineup for instantly searching terabytes of data. dtSearch's proprietary document filters support a wide range of data, including "Office" files, emails with nested attachments, static and dynamic Web data, and databases.

In addition to its enterprise products, dtSearch offers its instant searching and document filters for a range of Internet, intranet, and other commercial applications. The company's website showcases hundreds of developer case studies and press reviews. Fully-functional evaluations of all products are available.

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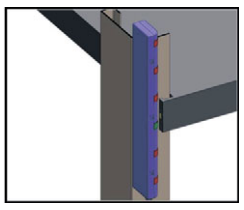

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RM417 / RM418

RM417 Rear view

RM418 Rear view

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Features: RM418

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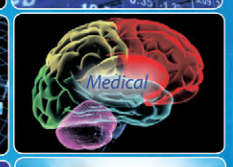

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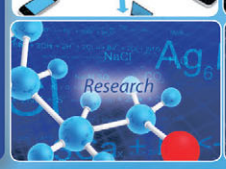

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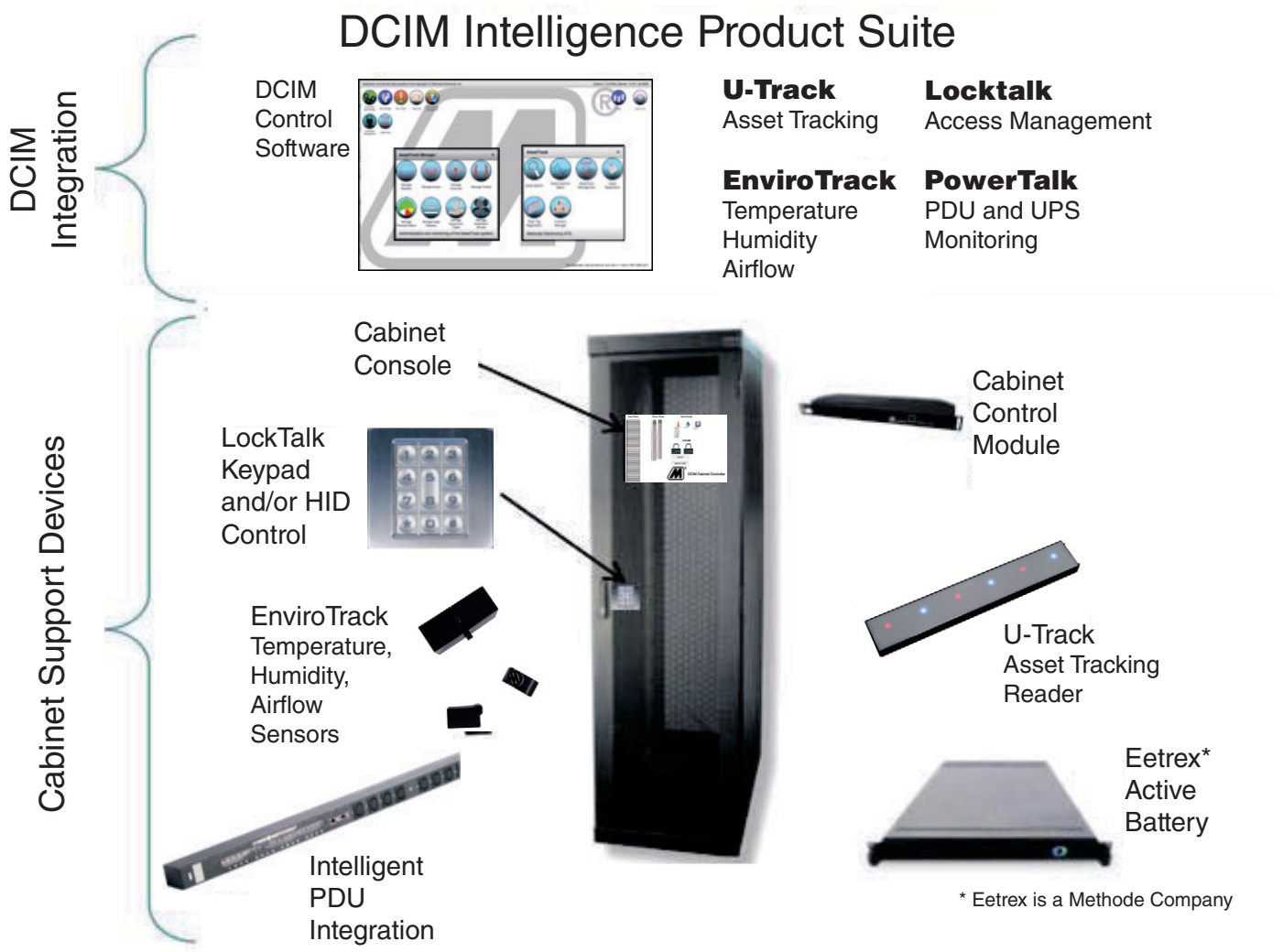

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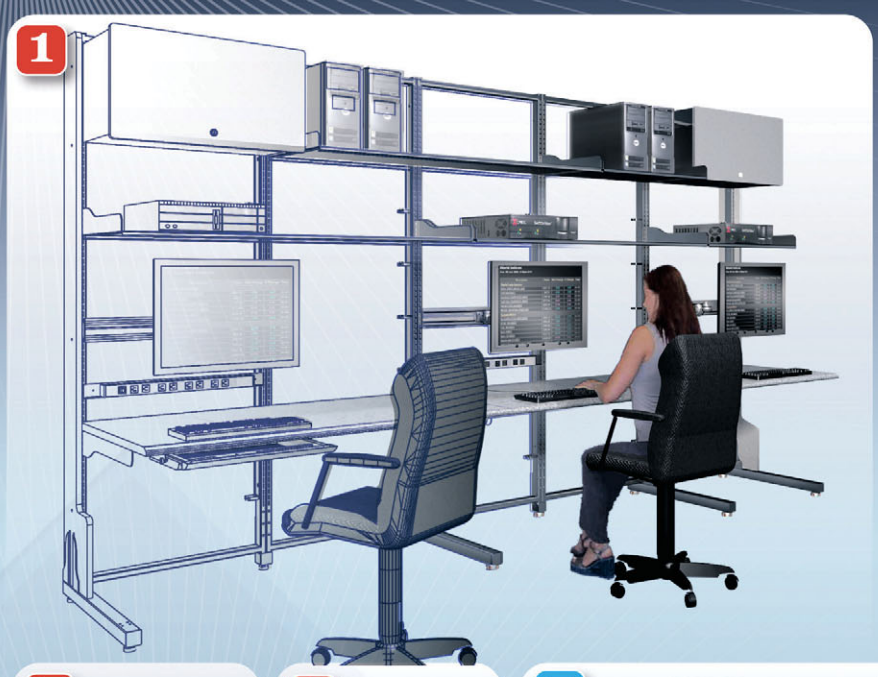

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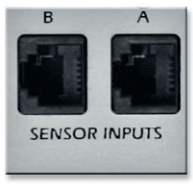

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"Its performance and reliability are impressive and the peace of mind it delivers is priceless.

To read more about Eric's application story, visit: MovinCool.com/Webit

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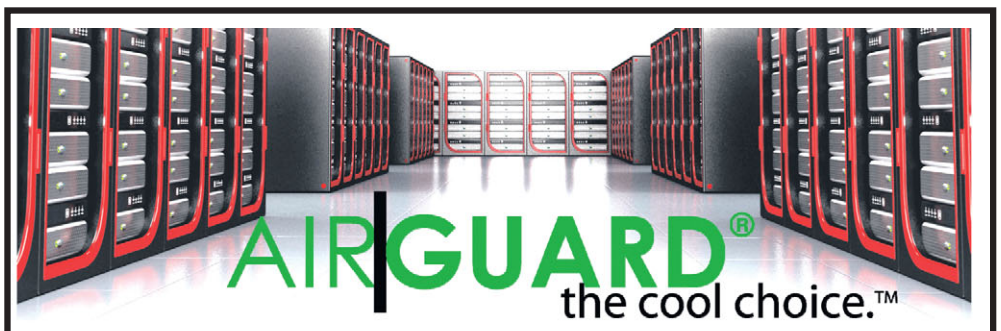

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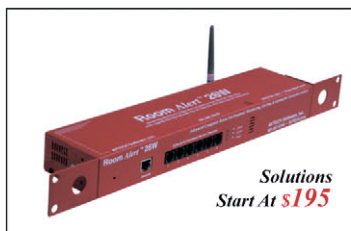

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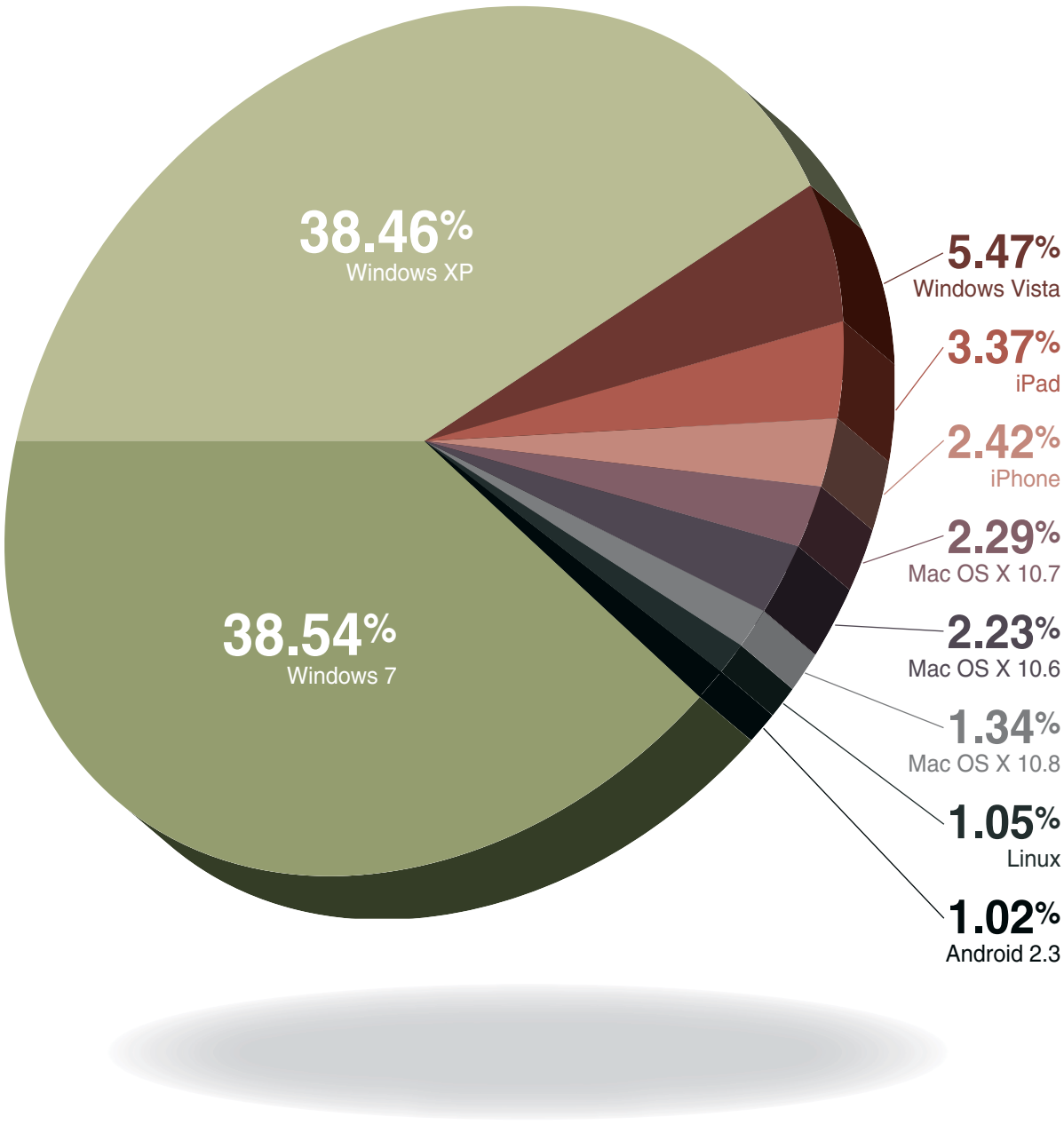
Windows 7 (Finally) Most Popular OS

Windows 7 is now installed on 38.54% of all systems, narrowly edging out the 38.46% of all systems that use Windows XP, according to the latest figures from Net Applications. When counting only systems that run Windows, about 46.6% now run Windows 7. Here's a breakdown of the operating system market, according to Net Applications:



Doing More With Smartphones

According to the latest U.S. mobile subscriber market share report from comScore MobiLens, there are 234 million adult and teen smartphone users in the United States as of July. Additional results from the report, based on a survey of 30,000 mobile subscribers, indicate that users were doing a little more with their smartphones in Q2 2012 compared to Q1 2012. Here are some of the figures, which show the percentage of all users who use smartphones for specific tasks.

	April 2012	July 2012	Point Change
Sent text message to another phone	74.1%	75.6%	1.5
Used downloaded apps	50.2%	52.6%	2.4
Used Web browser	49%	51.2%	2.2
Accessed social networking site or blog	36%	37.9%	1.9

Confusion Over The Cloud Remains

"The Cloud." If you mention that buzzphrase, chances are most Americans will relate it to the weather, pillows, or other items, according to a recent survey conducted by Wakefield Research and commissioned by Citrix. Just 16% of respondents view the cloud as a network to store, access, and share data from Internet-connected devices. More than 50% of respondents say they hardly ever or never use the cloud, according to the survey. But, in actuality, more than 97% of respondents are currently using the cloud and simply aren't aware of its use. After learning what the cloud is, most respondents recognize the economic benefits available, including lower costs, greater growth, and increased customer engagement for businesses.

FAA To Study Use Of Portable Electronic Devices On Aircraft

Because of fear over possible interference with airplane navigation and other systems, passengers currently have to power down their electronic devices, including notebooks, tablets, and smartphones, during takeoff and landing. But that may change as the Federal Aviation Administration is taking the first steps in examining whether passengers can keep their portable electronic devices powered up at all times during a flight. A government-industry group consisting of representatives from airlines, airplane and mobile device manufacturers, and pilot associations will look at the safety of using portable electronic devices—from both a passenger and technology standpoint—and perhaps set technology standards for using the devices during flights.

Smartphone Use To Grow Faster Than Expected

Demand for lower-cost smartphones in emerging countries and high-end models in more developed nations are combining to create higher-than-expected demand for smartphones. As a result, IHS iSuppli says, smartphones are now expected to account for the majority of global cellphone shipments by 2013. That's two years earlier than previously expected. Next year, IHS iSuppli reports, smartphone shipments should account for 54% of the total cellphone market. In 2011, smartphones made up 35% of all cellphone shipments; this year, that number is expected to be 46%. "Over the past 12 months, smartphones have fallen in price, and a wider variety of models have become available, spurring sales of both low-end smartphones in regions like Asia-Pacific, as well as midrange to high-end phones in the United States and Europe," says Wayne Lam, senior analyst for wireless communications at IHS iSuppli.

Group Seeks To Push Data-Sharing Specification

Simplifying the querying and sharing of data across applications for reuse in enterprise, cloud, and mobile devices. It's the goal of the OData protocol, which is currently being pushed toward standardization by the Organization for the Advancement of Structured Information Standards, or OASIS. According to OASIS, the OData protocol will allow applications to "make sense of a broader set of data," increasing the shared value of data by "creating an ecosystem in which data consumers can interoperate with data producers in a way that is far more powerful than currently possible." The OASIS OData technical committee includes representatives from dozens of tech firms.

Storage Sales, Revenues Show Strong Growth

The disk storage market posted revenues of about $8.1 billion during the second quarter of this year, an 8% increase compared to a year ago, according to IDC, with total system capacity topping 6,667 petabytes, up about 25% year-over-year. Liz Conner, IDC senior research analyst, storage systems, says that factory revenues approached $6 billion for the first time. Double-digit growth in the emerging regions and demand for midrange storage were the biggest contributors to the market growth. Other positives from the quarter include increased revenues in the Open SAN market, open networked disk storage market (NAS with Open/iSCSI SAN), and NAS market (up 8%, 6.5%, and 2.5%, respectively, year-over-year). The midrange storage class grew the fastest, though, up 12.2%.

New Report Sheds Light On Who's Using Web

About 2.4 billion people worldwide are now online regularly, according to Forrester Research. And in five years, that number is expected to be about 3.5 billion, or about half of the world's population. In conducting the survey, Forrester classified "regular Internet use" as at least once a month, from home, school, work, or any other location via an Internet access device. Forrester's report notes that in developed countries such as the United States and Japan, more than 80% of the population uses the Internet. In many emerging markets, such as Brazil and China, however, as little as 10% of the population is online. These emerging economies will benefit from greater mobile penetration in the next five years.

Study: State Governments Need To Take Advantage Of Big Data

State government agencies create vast amounts of data from a vast number of resources and need to develop big data strategies, according to a new report from NASCIO (the National Association of State Chief Information Officers). The report notes that state government CIOs need to have a vested interest in the growing activity around big data and realize its value in managing the enterprise, improving operations, and supporting inter-enterprise value chains. To get started, the NASCIO recommends state CIOs start with highly focused initiatives with clear objectives that can be achieved relatively quickly.

FCC Launches Mobile Broadband Performance Testing Program

The Federal Communications Commission recently launched its new Measuring Mobile America program, which will test mobile broadband performance throughout the United States in order to deliver accurate and detailed information to consumers. The new initiative will be modeled on the FCC's existing Measuring Broadband America program. According to the FCC's press announcement about the new program, "the FCC will work with wireless carriers, the public interest and research community, and other stakeholders to deliver consumers detailed information about mobile broadband performance."

Server Market Continues To Be Weak

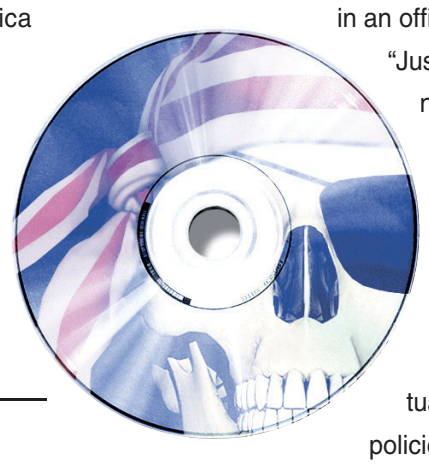
IDC recently posted its latest look at the worldwide server market, and the news isn't good. Factory revenue decreased 4.8% compared to a year ago, marking the third consecutive quarter of year-over-year decline, according to IDC. The number of server units shipped also dropped during the second quarter, down 3.6% year-over-year. That's the first drop in server shipments in almost three years. Particularly hard hit were the midrange and high-end systems markets, down 11.2% and 7.6%, respectively. One bright spot is server revenues in the United States, IDC reports, which grew slightly. Matt Eastwood, IDC group vice president and general manager, says the market is continuing to work its way "through a number of technology transitions impacting customer demand for x86, Unix, and mainframe-class systems." Economic uncertainty also continues to play a factor, Eastwood says.

University Study Highlights Causes Of Earphone Dangers

Research has shown for years that listening to earphones and headphones at excessive volumes can cause temporary damaged hearing and ringing in the ears. A new study from the University of Leicester in the UK, however, pinpoints exactly what causes such hearing loss. According to the study, noise louder than 110 decibels (that is, noise levels that are as loud as jet engines, or volumes that headphones and earphones can reach) strips the insulating myelin layer off of the nerve cells that carry electrical signals from the ears to the brain. Because myelin can reform, the researchers now know why this kind of hearing loss can be temporary.

SIIA Forms International Partnership To Thwart Software Piracy

The SIIA (Software & Information Industry Association), a trade organization for software and digital content providers, has teamed up with FAST (Federation Against Software Theft), a UK anti-piracy organization, to launch an international campaign designed to curb software piracy. Ken Wasch, SIIA president, wrote in an official blog post on the topic, "Just as software pirates do not operate within traditional geographic borders, neither should the organizations working to put them out of business." SIIA and FAST will work toward improved intellectual property regulations and policies, better enforcement and United States-Europe cooperation, and collaborative research to serve the ultimate goal of shutting down piracy operations.



IDC: IT Spending Increasing, Despite Economic Uncertainty

Worldwide IT spending is set to grow 6% this year, according to research group IDC, which is down just slightly from 2011's growth of 7%. In the United States, IDC expects IT spending to increase 5.9% this year, down from the 8.5% growth last year. The software, storage, enterprise network, and mobile devices markets set the pace and more than made up for weakness in the PC, server, peripheral, and telecom provider equipment markets. "While this is a tough year for many IT vendors, the overall performance of the industry has been healthier than many expected in the first half of this year," says Stephen Minton, an IDC vice president.

SIX QUICK TIPS

Choose The Right Backup Power Solution

Compare Size, Capacity & Battery Life When Deciding Between Centralized & Distributed Backup

A BACKUP POWER SOLUTION is one of the most important facets of your data center. It can keep your equipment running during power outages and make sure employees can continue working with little to no interruption. But when it comes to choosing between a centralized or distributed backup solution, it's important to spot the features, advantages, and disadvantages with both types of backup power. Here are a few things to consider.

✔ Maintenance & Redundancy

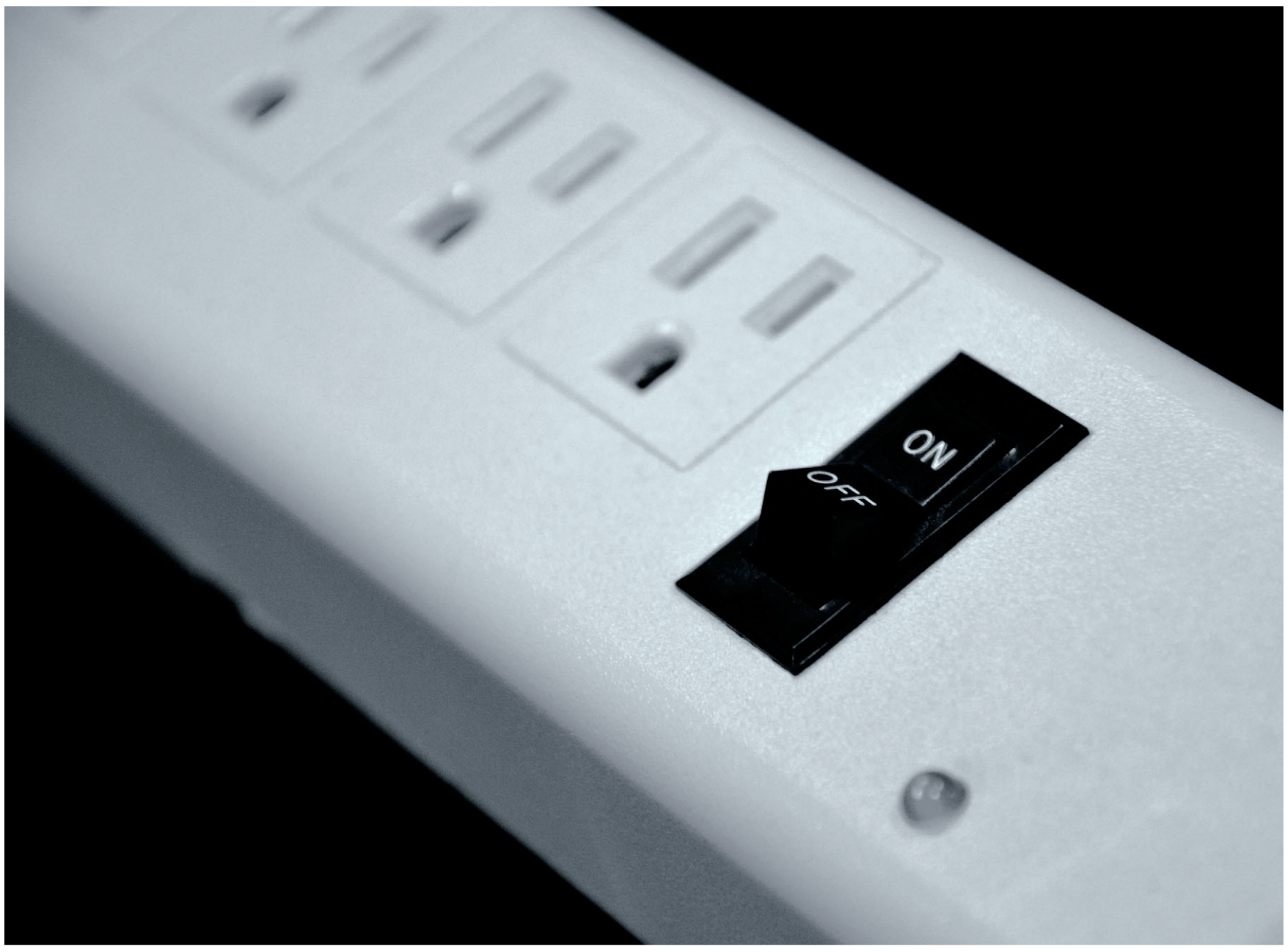
Feature sets and capacities are two of the biggest differences between centralized and distributed backup power solutions. Centralized backup products are often far away from the equipment they are backing up and have enough capacity to handle multiple mission-critical racks or cabinets full of servers, networking devices, and more. Distributed backup solutions are often installed directly into the racks themselves or are near equipment because they are smaller and have less capacity.

Because of their different sizes, capacities, and features, deciding between distributed or centralized could come down to redundancy and maintenance concerns. "In general, centralized solutions open up the possibility of more types of higher-level redundancy that may be cost justified when protecting more valuable business processes," says Jim Fink, consultant at Upsite (888/982-7800; www.upsite.com). "Larger numbers of distributed UPSes can result in maintenance and management headaches due to a nearly continuous stream of battery replacements and IT interface work, such as firmware upgrades."

✔ Monitoring & Management

In addition to redundancy and maintenance, centralized and distributed power backup solutions also provide different levels of monitoring and management. This also brings feature sets into play, because centralized solutions often have more backup tools built-in that require more sophisticated management systems. And because distributed alternatives are smaller and less complex by nature, they often come with fewer monitoring capabilities. However, if you find that distributed solutions are a better fit for your data center, there are some inexpensive ways to retrofit them with more in-depth monitoring functionality.

"Each vendor will have a centralized console, and some are better than others, but the question becomes, 'If I want to put in more environmental measurement at the rack level, what can I do?,'" says Darin Stahl, lead research analyst at



Info-Tech Research Group. "For less than $250, I can buy sensors that'll plug into these types of solutions, and I can monitor airflow and temperature on the front side and monitor power at the plug level on the backside. You buy those little sensors, and they come in a box of some numbers, and they're extraordinarily cheap."

✔ Look At The Batteries

It's important to remember that backup capacity is directly related to batteries. In fact, according to Fink, "the battery of any UPS is the weak link in the system." For the highest reliability needs, he says, consider flooded batteries, which are often only available in centralized systems. Stahl says that batteries "are so extraordinarily efficient that it's hard to pick them apart." He says that companies will need to look at battery life and how it corresponds with their specific backup needs.

"The batteries and technology put in larger units can run in echo mode, and there are a ton more features," says Stahl. "What they put into the bottom of the rack gear is fine technology, but it is commodity and almost disposable. I'm still going to have to refresh them based on usage to the number of discharges and the age. At some point, they just don't condition any longer. With distributed, it comes down to, 'Can I cost-effectively replace the batteries, or should I just throw the entire system away?'"

✔ Consider Using Both Centralized & Distributed

For most companies, there won't be a one-size-fits-all backup power solution. Instead, it might make more sense to use a combination of both backup power types to get the best results. "If a centralized system is loaded to a capacity whereby further growth is constrained or redundancy may be lost, it can be an enormous capital project to upgrade the system," Fink says. "In this case, it may be the best financial decision for the company to defer or avoid that cost by accommodating a limited amount of further growth with a distributed system."

Stahl agrees and says that there are places for both solutions. It may be a good idea to use centralized backup power with mission-critical equipment to ensure that it will stay up and running and help you avoid downtime for as long as needed during an outage. But you can then use distributed backup for equipment that isn't mission-critical and is "not necessarily expected to run," Stahl says. "Backup power has a higher dollar amount. Once I can align the cost of that backup power being provided with the business needs, now I know I'm making the right decision," he says. P

✔ Size-Based Power Backup

James Hall, marketing manager at Staco Energy (866/261-1191; www.staco energy.com), says there's a clear correlation between the size of a company and its backup power needs. He says that small businesses "usually have network closets where occasional downtime is disruptive, but not mission-critical," which means distributed UPSes are a viable backup power solution. He adds that medium-sized enterprises of between 100 and 1,000 or more employees generally have a mix of distributed and centralized UPS systems because they often have a server room or localized data center that has a variety of requirements. But larger enterprises with 10,000 or more employees really benefit from centralized UPS backup because they need constant access to mission-critical data with little to no downtime.

✔ Consider Installation Issues

Your choice of backup power solution could come down to installation and maintenance needs. "The centralized system's larger capacity requires installation and maintenance by electricians," says James Hall, marketing manager at Staco Energy (866/261-1191; www.stacoenergy.com). "In contrast, the distributed system allows the in-house IT workers to do most of the installation and maintenance." However, he adds that maintenance for centralized units "can be done at one location, instead of 50 or more locations." It's ultimately up to your preference, but Hall says that distributed units are often "disposable," whereas "with proper maintenance, centralized systems have better reliability."

BONUS TIPS:

✔ Limit Distributed Backup Usage

Distributed backup power solutions are great for smaller applications because they are "often plug and play and very easy to deploy," says Jim Fink, consultant at Upsite (888/982-7800; www.upsite.com). But he also cautions that widespread usage can result in unnecessary costs related to battery refreshes and other issues.

✔ Is It A Fit For Your Environment?

Companies can choose whichever solution they prefer for their own environments, but the available options often shrink if a company is taking advantage of colocation or offsite hosting. "When purchasing or renting a facility, understand the electrical service constraints," Fink says. "Upgrading a service is sometimes nearly impossible or very expensive."

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Ensure Optimal Network Range, Connectivity & Performance

As the size and workforce of your company continues to grow, your network will need to be able to support a large number of users and devices over a longer distance. And companies need much more than basic availability.

"With no Ethernet ports on tablets and smartphones, and many laptops and ultrabooks dropping their Ethernet connectors, wireless is no longer an optional nice-to-have. It has to work," says Bruce Miller, vice president of product marketing at Xirrus (www.xirrus.com). "Traditional wireless design provisions users with just 5 to 10% of the bandwidth of wired users. This does not make sense if you are replacing one with the other—wireless design practice has to change."

It's obvious to most companies that a high-quality wireless network is a necessity, but it may be less obvious how to actually improve the performance of the network. With the help of experts, we'll show you how to spot an underperforming network and provide a few tips on how to get it up to par.

Spot The Telltale Signs

When it comes to any performance-related issue, there are obvious indicators as well as others that are not as easy to spot. For instance, spotty connectivity and slow download or upload speeds are clear indications that a network could use some work. But if your employees are accustomed to this type of performance, they may not even report an issue. The key is finding out which tasks or applications are affecting network performance, which could point to a hardware or software issue rather than a problem with coverage.

"The difference between a good and great wireless network may not be as obvious as the difference between a good and bad one," says Zak Wood, director of global marketing at TRENDnet (www.trendnet.com). "We've all experienced slow page load times, download timeouts, and extremely slow document load times due to slow connections. And due to the strong migration toward the use of video in the enterprise space, bandwidth-heavy video lag is a common experience, as well."

Determine The Needs Of Individual Departments

To dig even further into your workforce's experience with the network, you should look at each department separately to assess their coverage needs. "Sales, marketing, and Web teams may require high-performance

Key Points

- Recognize the signs that your wireless coverage and network performance may not be as good as it could be. Ask your employees about their experience and determine departmental needs.
- Monitor the wired backbone of your network to ensure there isn't a hardware problem deeper inside the company. Then, look into the possibility of issues with individual computers and determine whether component upgrades are necessary.
- Consider wireless roaming coverage, constant connectivity, and additional access points as solutions to coverage issues throughout your building.

wireless connections due to their intensive Internet usage, whereas the accounting department may only require a dependable wireless connection," Wood says. "Conversely, the shipping department may not require a high-speed connection, but still be interested in a zero downtime wireless network so that they can continue to process shipments even if there is a power outage."

After you've determined your company's departmental needs, you may be able to solve your coverage problems by providing each segment with its own wireless network or access point. By individualizing your wireless network connections, you will lower the number of users on each access point, localize the coverage area and range of the network, and improve the overall performance on a department by department basis.

Assess The Environment

With wireless-only devices now ubiquitous, coverage has to be ubiquitous as well—and that includes stairways, restrooms, and outdoor areas, Miller says. In areas that receive higher use, such as conference rooms, lobbies, and training facilities, the capacity of the wireless network has to be factored into the design. "Not just five bars of signal, which equates to good coverage, but enough available channels, which equates to capacity," he says.

If you find your wireless coverage and network performance is suffering, don't forget that there could be a hardware issue with your wired infrastructure. "Oftentimes, a slow wireless experience is caused by the network backbone," Wood says. "A given company may need to upgrade their ISP bandwidth or there may be a routing bottleneck on the wired side."

In addition to data center-related hardware issues, there could be problems on individual computer systems. Wood recommends documenting the supported speeds of desktops, laptops, and other devices to determine whether they should be upgraded. He also says companies should "map the upload and download speeds supported in each departmental area during peak usage times," which will give you an indication of where your wireless network should be for optimal performance. For instance, you may need to install a new wireless adapter in your laptop that provides better wireless range and more stable connectivity.

Consider Wireless Roaming Coverage

If you decide that segmenting your network into a series of smaller access points isn't the right approach for your company, then you could also consider wireless roaming coverage, which "allows wireless users to gain network resources and/or Internet access throughout their office space," according to Wood.

Wireless roaming gives users equal access to the network regardless of where they are in the building and allows them to move from one room to the next without interruption. Wood also recommends upgrading all access points to Wireless-N and integrating "data security to prevent unauthorized access." This solution should give your entire workforce access to a high-speed Internet connection without the need for a massive infrastructure overhaul.

Top Tips

The following tips were provided by Koroush Saraf, senior director of product management at Fortinet (www.fortinet.com):

- ✔ Determine whether there are any clients that have connection issues by looking at the wireless controller user interface.
- ✔ Determine whether there are any clients with a weak signal or clients that keep dropping and reconnecting and identify clients that have a very low connection speed.
- ✔ If you find that your existing access points are overloaded, then it may be time to add more. Plan for a maximum of 30 clients per radio.
- ✔ Use a centralized wireless controller solution. A view of your overall network health will go a long way in helping you diagnose and address potential coverage issues.

Action Plan

The following steps were provided by Koroush Saraf, senior director of product management at Fortinet (www.fortinet.com):

- Determine whether there are any problems with your wireless coverage. It's a good idea to start by asking employees whether they are having difficulty connecting.
- Determine the source of the problem. In many cases, the source is not the wireless network, but either a device that has a sub-par Wi-Fi card or old drivers. There may also be some interference from other nearby access points or devices using the same spectrum.
- Perform an active site survey to determine the Wi-Fi interference sources and determine coverage.
- If coverage holes are found, upgrade to 802.11n and deploy additional access points.

Get Started

"A simple way to get started is to survey employees about the quality of the wireless network," says Koroush Saraf, senior director of product management at Fortinet (www.fortinet.com). "We have found that many employees just think that wireless should be slow and intermittent so they don't complain. Be very explicit in your questionnaire and ask whether there are areas of the building that they have experienced no coverage or a slow network connection."

SIX QUICK TIPS

Consolidate Servers

A Guide To Realizing The Cost-Cutting, Space-Saving Benefits Available

Most data centers have a limited amount of space with little room for expansion. Bringing in a single new piece of equipment could mean rearranging your entire data center layout in order to accommodate the new component. In an effort to save space, many companies will look to server consolidation, which aims to provide the same level of performance within a smaller overall footprint. In addition, server consolidation often comes with a lower price tag related to equipment purchases, energy bills, and more.

But the only way to reap all the benefits of server consolidation is to go into the process with a solid understanding of what you want to do and the results you expect to receive. We'll show you how important the planning process is and provide a few tips and tricks that should prevent headaches during server consolidation.

✔ Avoid Mistakes By Planning Ahead Of Time

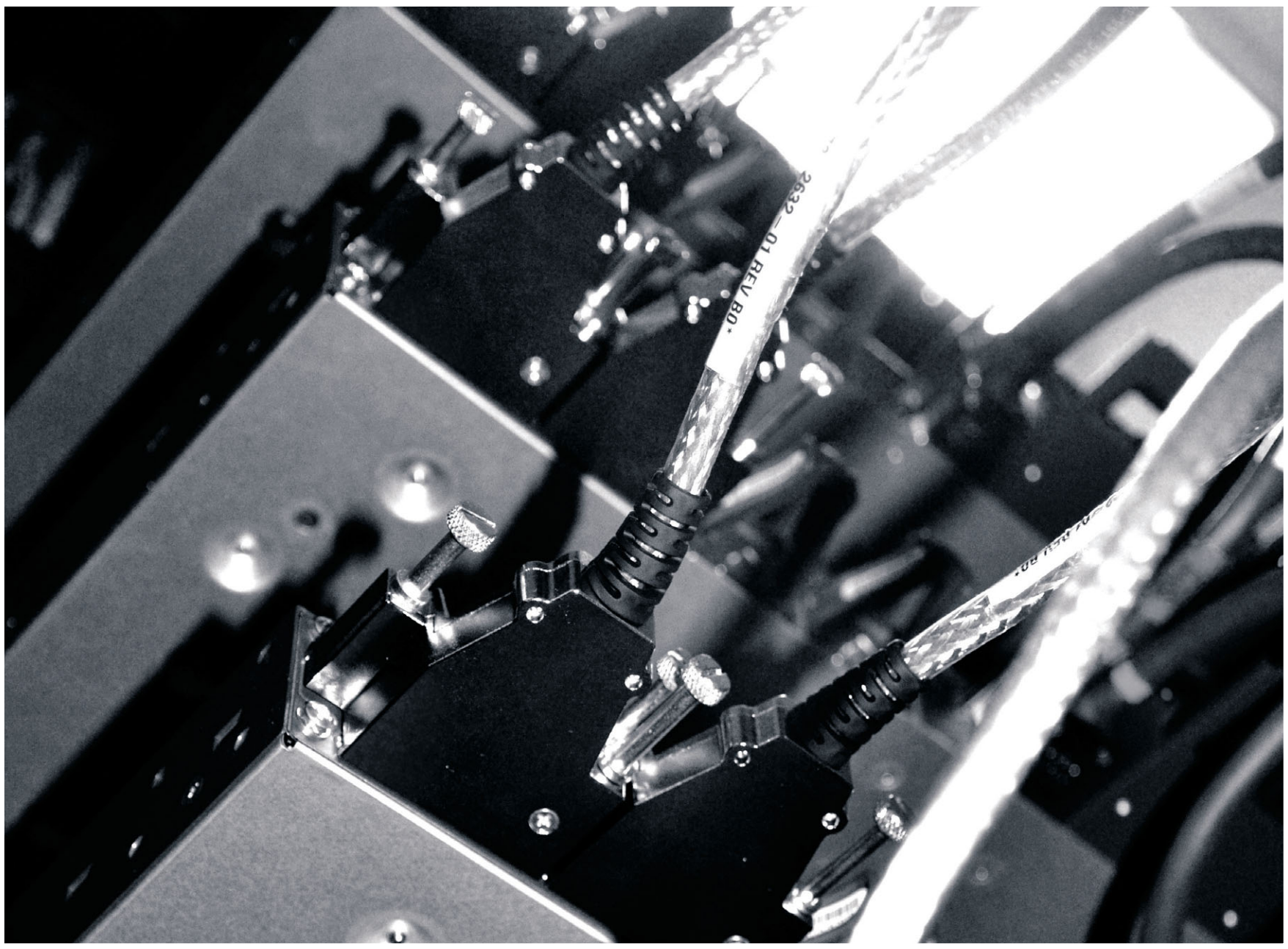
One of the worst things that could happen during server consolidation is finding out that you made an error somewhere along the way. Even small mistakes can cause downtime, which can snowball into much worse issues down the road. As with any data center move or reorganization, you should come up with a detailed plan that points out employee responsibilities, which pieces of equipment are being consolidated, and every other facet of the consolidation. A well-thought-out plan will make the process go much more smoothly and prevent you from having to move backward.

"This is really about taking a logical, straightforward approach and including advance planning," says Jeffrey Hewitt, research vice president at Gartner. "Develop a team to analyze a comprehensive consolidation approach with designated leadership. Articulate a clear set of objectives for the consolidation project, such as agility, reduction in hardware capital expenditure, or increasing available floor space, and develop the implementation steps and measure outcomes accordingly. Then, determine a list of server candidates for the consolidation."

✔ Know Where To Start

Selecting "server candidates" is an important step in the process. Once you've determined the need for consolidation, you have to look at each individual piece of equipment to know whether it is a good fit for consolidation. "Server workloads with relatively low utilization rates and a lack of I/O and CPU contention are typically the best candidates," Hewitt says. Servers that aren't being fully utilized are inefficient and could be driving up your data center costs.

Dave Powell, executive vice president of worldwide sales and marketing at Assurance Storage (www.assurancestorage.com), says that, in addition to simply underused servers, you should also consider servers that are set up for single applications. "Software vendors frequently recommend running their systems on standalone servers to minimize contention," he adds. Powell also says



that servers hosting Microsoft Office or Exchange environments are great early choices for consolidation because they have generally less complicated frameworks and aren't necessarily as mission-critical as other solutions. Plus, email and Office-based software solutions are great candidates for server virtualization if you decide to take that route.

✔ Implement Server Virtualization

Server virtualization is often one possible component of server consolidation. Companies looking to cut down on the amount of physical space reserved for servers will more than likely want to take a look at virtualization and how it can improve server utilization and performance.

"There are numerous benefits to virtualization, ranging from lower hardware costs, people costs, software license costs, and physical data center costs," Powell says. It may not be obvious from the beginning, but by saving space in your data center, you can cut down on cooling costs, power consumption, and more. And by introducing virtual machines, you can cut down on desktop-, laptop-, and mobile device-related costs associated with upgrading individual machines.

However, virtualization must be used correctly to provide the expected level of performance. Powell says it's critical to test your virtualization environment because "virtualization has returned storage to being one of the major bottlenecks within an environment." Planning is essential. If you implement virtualization but don't account for the amount of data moving through the server, you could end up causing more harm than good to your server's performance.

✔ Consider Hardware Repurposing & Upgrades

In some cases, your infrastructure may not be well-suited for consolidation or virtualization. You can choose to take advantage of cloud computing solutions or even colocation to improve efficiency and performance without buying more equipment, but sometimes a server upgrade is the best way to consolidate. For instance, a new server will be more technologically advanced than previous models, which means lower power consumption, more efficient use of storage space, and increased utilization. You may even be able to replace several older servers with one new one, which will aid in the consolidation process.

But just because you're investing in a new server doesn't mean your old equipment has to go to waste. "Utilizing older legacy hardware as your virtualization platform is not always feasible due to the higher amount of processing power required," says Duan van der Westhuizen, solution line leader at Rackspace (www.rackspace.com). "In this case, you should add in the cost of replacing older, sometimes already depreciated, hardware. Older hardware can, however, be repurposed for backup and disaster recovery sites or used in non-production solutions." P

✔ Know What Areas To Avoid During Consolidation

"Servers that run applications with dramatically different profiles should not be considered for consolidation or virtualization, since in many cases the differing uses of these applications could result in performance degradation," says Dave Powell, executive vice president of worldwide sales and marketing at Assurance Storage (www.assurancestorage.com). You should also take a layered approach to consolidation, similar to how you would with virtualization, by starting your consolidation efforts with servers that run less mission-critical applications before moving on to more crucial ones. By consolidating over a longer period, you can prevent downtime and make sure your business is still fully operational during the entire process.

✔ Watch For Workload-Based Consolidation

Knowing how a server is being utilized is helpful in determining whether it is right for consolidation. But that information will also help you effectively consolidate the server without negatively affecting performance. "Another approach, beyond starting with test-and-develop, is to consolidate from a server workload perspective," says Jeffrey Hewitt, research vice president at Gartner. This approach categorizes workloads, such as compute-intensive or infrastructure-related, and attempts to configure hardware to best suit it for consolidation of a given set of workloads with a given set of characteristics."

BONUS TIPS:

✔ Analyze Your Inventory

"Conduct an inventory of existing physical hardware and workloads and select the best consolidation candidates," says Jeffrey Hewitt, research vice president at Gartner. "Include depreciation and lease implications relative to consolidation of any of the potential consolidation candidates."

✔ Avoid Server Sprawl

If you're spending time on a server consolidation project, chances are you don't want to find yourself repeating the process in a few months or years. So put a plan in place to prevent it from happening. Server sprawl can cause servers or virtual machines to be underutilized while drawing massive amounts of power and taxing your cooling systems. "Recognize that there can be a shift from physical server sprawl to virtual machine sprawl and maintain controls to prevent that sprawl," Hewitt says.

HOW TO

Maximize The Life Of Existing Data Center Equipment

Steps You Can Take To Get More Bang For Your Buck

Lengthening the life of aging data center equipment is not only possible, it is a necessity for many businesses that are looking to squeeze more ROI out of their existing equipment, including storage, cooling, and servers. By making a concerted, faithful effort to maximize the lifespan of data center equipment, nearly any enterprise can save money, time, and manpower by stretching out the periods of time they traditionally follow for making hardware upgrades and replacements.

The fact is that just because equipment is older doesn't mean it can't serve a meaningful purpose. Google, for example, makes a point of detailing that over recent years it has avoided buying more than 90,000 new replacement servers by redirecting outdated servers at tasks requiring less processing power, thus enabling a more efficient and environmentally friendly operation. In an age when enterprises are increasingly turning to cloud providers, it's becoming less necessary to maintain loads of processing power and other resources. Overall, enterprises have much to gain by maximizing the life of their existing data center equipment. Here's how.

Maintain Proper Maintenance

Some enterprises shoot themselves in the foot by simply neglecting to engage in continual, routine maintenance duties. Speaking specifically about cooling equipment, Jim Fink, consultant at Upsite Technologies (888/982-7800; www.upsite.com), says properly maintained HVAC equipment can last 20 years or more. "A single new CRAC unit can cost $50k installed, and the installation can be invasive and disruptive to an operational data center," he says. "Maintenance can defer this expense and avoid the operational impact."

Beyond following a manufacturer's recommended maintenance schedule, Fink says to select equipment upfront that will work well with your site's unique conditions. "For example, there are at least four different types of humidifiers available for data centers, each has different advantages. Some types are tolerant of bad water quality, some are not. If you run the wrong humidifier with poor water quality, you may end up replacing it every few years. Alternatively, a water purification system could be installed at the site if its expense justifies the maintenance avoided."

Ryan Brown, vice president of sales and marketing at xByte Technologies (www.xbyte.com), says doing something as straightforward as cleaning dust can be a major factor in decreasing heat and ultimately preventing equipment failure. "Clean your systems regularly," he says. "There is minimal downtime in doing this maintenance, and it can have a huge impact. A dirty server will generate more heat, and therefore costs more to cool and will have parts fail at a faster rate." Additionally, he says, applying BIOS and firmware updates, which may come out 12 to 24 months after the original release, can speed performance and reduce stress on equipment.

Key Points

- Cleaning dust can help reduce the risk of heat negatively affecting equipment, including servers.
- Routinely performing maintenance chores, including following the manufacturer's recommendations, can prolong the life of equipment.
- Investing in virtualization technologies covering servers and storage can help consolidate resources and maximize current investments.

Think Before Buying

Certain types of equipment inherently lend themselves to being easier to maintain. For example, Fink says, "Chilled water equipment is generally more maintenance friendly than DX equipment when operational concerns are considered. The chilled water plant is located outside the data center so that both corrective and preventative maintenance can be conducted without a lot of the data center risk that work in the data center creates. Air handlers are likely to still be located in the data center, but they are less complicated and therefore less maintenance intensive than their DX alternatives."

Investing in equipment that can be used in association with an automated environmental monitoring system can pay off long-term due to lengthening the lifespan of servers and other hardware that heat might otherwise adversely affect. Investing in virtualization technologies that can enable consolidating inefficient servers into fewer physical machines is another example where enterprises can save power and cooling resources while opening up floor space.

Generally speaking, Darin Stahl, an analyst at Info-Tech Research Group, says the economic downturn and virtualization have altered how enterprises view equipment. Refresh cycles have expanded, he says, and enterprises are trying to wring every ounce of usefulness out of equipment. Whereas five years is the most common refresh point for servers, Stahl says, more companies are pushing this to six-plus years and fewer are refreshing at three years.

Recognize The Time To Move On

Ultimately, the time will come when old equipment must be replaced. One way of recognizing this, Fink says, is reviewing the cash outflow stream trend and projecting into the future. "Compare the present value of the cash flow with the capital cost of new equipment, factoring in any efficiency increases that may result from the new technology," he says.

Brown says saving on costs is a primary benefit of extending equipment life, as "it's always more advantageous to upgrade before buying new." If buying new equipment is a must, however, he says to always factor in "soft costs" to the process of implementing a new system. Such costs include expenses related to new operating systems, technician/implementation costs, and any possible downtime, he says.

"If money is the deciding factor, then wait until upgrading old equipment won't support the business," he says. "If performance is the deciding factor, then wait three months after the manufacturer stops supporting the equipment. This will yield a high return for the old equipment while avoiding the high price of new bleeding-edge technology."

Leverage The Old For The New

Just giving away old equipment is one mistake some enterprises make when they think they have no other option, Brown says. "Most often, older equipment has some kind of value. Try to work a trade with the vendor who is selling you the new equipment. If the trade doesn't work, then at least find a recycler who will give you money for the weight of the metal," he says.

If attempting to sell old equipment yourself, Browns says to understand the marketplace and know when to sell the equipment to maximize return. "Historically, old servers have actually gone up in value in the three to six months after the manufacturer ends support," he says. "When selling equipment, work with vendors who inventory and sell the servers you want to sell. They will have an active end-user base and will generally give a better price." P

Top Tips

- ✔ **Train employees to spot trouble.** Jim Fink, consultant at Upsite Technologies (888/982-7800; www.upsite.com), advises enterprises to train equipment operators to detect problems before a crisis occurs. For example, a failing motor or bearing often changes its sound or operating temperature before it fails. "Review runtime hours between past failures and preemptively respond. Get parts ordered. Schedule the maintenance before the 2 a.m. failure," he says.
- ✔ **Testing.** Among the possibilities for reusing older equipment is using it in testing environments, for backup purposes, and as transitional equipment during data center moves.
- ✔ **Instant deployment.** By keeping extra equipment on hand that IT can instantly deploy, an enterprise can save the time and money it would otherwise need to buy or rent equipment for non-mission-critical environments.

Action Plan

- Invest in equipment that naturally lends itself to being easy to maintain
- Follow the manufacturer's maintenance schedule
- Engage in routine cleaning
- Consistently perform BIOS and firmware updates
- Create a failure-prediction program
- Establish financial trip wires that help indicate when new CAPEX is justified
- Monitor the marketplace to detect when upgrade prices fall

Get Started

A simple but effective starting point to lengthening the life of data center equipment is creating and enacting maintenance, inspection, and cleaning plans and schedules that also include installing available upgrades and updates, such as server BIOS or firmware updates. Investing in consolidation, load-balancing equipment, and automated monitoring systems that help alert IT to heat-related issues can reduce equipment-related costs in the long term.

SIX QUICK TIPS

What's New In Rack & Cabinets

Trends & Features To Watch For In The Enclosure Space

Racks, cabinets, and their associated accessories aren't the most glamorous components in the data center, but they are among the most vital, providing what essentially is the foundation upon which the data center operates. Keeping an eye on the newest features and trends can help you be a more educated buyer.

✔ Go Taller

Data center managers are dealing with greater space limitations and more demands on computing power, says William Shatto, IT product engineer at Rittal (www.rittal.com). Because of this, many enterprises are turning to high-density computing and virtualization, which in turn can often mean additional heat and cables and need for more efficient cooling. Ultimately, however, accommodating increased demands for space and power means the data center must expand. For most enterprises, using tall, deep enclosures designed for today components provides a fast, efficient return on IT investment, he says.

"When demand for higher and higher density increases and the ability to rebuild or physically expand a data center is not an option, the readily available 47U and 52U enclosures in the expanded 48-inch (1200mm) size with a variety of cable-management options are becoming not only viable, but extremely attractive," he says.

"Building up" is more than adding height to an enclosure, however. Shatto says it's also "about increasing volume of usable space and using that volume more efficiently." Most data centers, he says, "have more than enough room above existing rows to accommodate today's taller enclosures and all their related accessories."

Beyond stretching to 52U, Shatto points out various techniques that add viable space between the rack and rails and components mounted inside the enclosure. The 0U, or zero U, concept is one example, essentially allowing "for maximum space allocated to the components while taking nothing away for cables, accessories, or power sources," Shatto says. The design also maximizes airflow.

Shatto says a server enclosure with integrated cord cassettes and cable management tools provides other advantages in the "build up, not out" scenario, including faster deployment via true plug-and-play within a roll-in structure; the ability to conserve additional space via top-mounted racks for patch panels or interconnect equipment; and multiple mounting options that make installations versatile and efficient.

✔ Open Up To Interchangeable Doors

Deborah Petty, president of Rackmount Solutions (866/207-6631; www.rackmountsolutions.net), says one of

the newer trends occurring in the rack and cabinet domain involves interchangeable doors that integrate thermal control abilities. "Some fit over existing racks as a retrofit; others can be ordered as a new rack with that feature," she says. "Closed loop fan doors, rear door heat exchangers, etc., all assist in thermal management, whether in a data center or smaller setup," Petty says.

Doors are also going "green," Petty says. "These are really going to help small to midsized companies that don't need a big, environmentally controlled data center but still have to keep eight to 10 racks cooled down cost-effectively," she says.

✔ Decide If A Retrofit Makes Sense

Petty says whether a retrofit makes sense depends on the enterprise's future equipment purchasing plans. "A lot of legacy cabinets are 30 inches or 36 inches deep," she says. "Newer equipment is much longer, needing 42- and 48-inch deep racks. If you're planning to seriously upgrade your servers or big switches, you need to plan for a rack's ability to handle it."

Along those same lines, Petty says companies can save considerable money by buying a rack with interchangeable parts. "The rack you buy today may need a different type of door two years from now when you move it or your security or thermal needs change," she says. "Why pay for another rack if you can go back to the original manufacturer and buy a different door at a fraction of the price?"

✔ Get Energy-Efficient

When deciding which rack/cabinet trend deserves your attention first, there is "no magic answer," Shatto says, as "it depends upon what a data center is trying to accomplish and what its most pressing needs are." Generally, he says, efficient energy usage and reduction in energy costs "is certainly one of, if not the major concern when data center managers are trying to maximize results within strict budget constraints." Overall, when exploring new trends, Shatto says, "increasing efficiencies, including better cooling in high-density installations, should be a high priority."

When deciding if a specific trend is actually worth investing in, Shatto says you need to take into account a complete evaluation of your enterprise's energy use, current and expected component densities, and similar concerns before making a decision to expand. PUE (power usage effectiveness) and DCiE (data center infrastructure efficiency) are two measurements that can help with the decision. P

✔ Go Independent

Deborah Petty, president of Rackmount Solutions (866/207-6631; www.rackmountsolutions.net), says small to midsized companies "can get exactly what they need in a rack, from height to width, the desired combination of doors, fans, power, etc., by going with independent rack manufacturers." An independent company offering customization services, she says, "will cut a hole wherever you want cable management to come out of the rack, or reverse the hinges, etc."

Independent rack manufacturers "really specialize in a huge number of quasi-custom racks, commercial off-the-shelf." Such companies can take standard server rack components and parameters, such as different doors, side panels, heights, widths, and depths, and then create "literally hundreds of combinations of racks without it being custom." Essentially, the idea is that there's no such thing as one-size-fits all. Further, Petty says, such companies aren't locked into a particular server manufacturer and can offer open architecture and equipment-agnostic racks.

✔ Need Fast ROI? Watch For These.

William Shatto, IT product engineer at Rittal (www.rittal.com), says significant energy consumption and related cost reductions can demonstrate ROI in the shortest period of time, although the exact ROI depends upon the data center's critical requirements. Liquid cooling packages, he says, "can be retrofit to upgrade existing installations and have demonstrated an ability to reduce energy consumption by as much as 45%."

Getting more efficient cooling—for higher-output IT component densities—from the same floor space can be significant, he says. "And replacing existing enclosures with taller models that not only house more of today's larger components more efficiently but provide better airflow and better cable management in the bargain, means an enterprise of any size is able to generate more return from equal or less space."

BONUS TIPS:

✔ OpenRack: A New Initiative

One rack initiative underway is Open Compute Project's OpenRack, "the first rack standard that's designed for data centers." Deborah Petty, president of Rackmount Solutions (866/207-6631; www.rackmountsolutions.net), says the organization has "some great ideas about the ideal rack" that, other than perhaps the server rails, are "definitely doable by all rack manufacturers."

✔ Factor In Accessories

When purchasing new servers and racks at the same time, Petty points out that getting server manufacturers to standardize on slide out/fixed rails for their servers isn't a rack issue, it's a chassis issue. "Accessories aren't usually bundled into a deal," she says, so be sure to factor them into your costs.

SIX QUICK TIPS

Boost Your Security Arsenal

Implement Tools & Policies To Stay Ahead Of The Curve & Mitigate Risks

These days, it doesn't matter if you're a small to midsized enterprise, a corporate banking institution, or a global Fortune 500 company—if you're doing business, you're a potential security target. As Dan Olds, founder of Gabriel Consulting Group, puts it, smaller enterprises "typically think that they're not targets for hackers and thus a little safer than larger firms in sexier businesses, like banks," but that's not the case.

Hackers today are using automated tools to scan the Web seeking unpatched systems and "anything that's ripe for exploitation," he says, using the exploit themselves or selling the info to others to steal your data, conduct a little cyber vandalism, or even change passwords related to your data center to "try to get the company to pay a ransom to get access to their systems again." Undoubtedly, your enterprise has various security measures in place. Chances are, however, that your security arsenal could use a little improvement.

✔ Build A Better Foundation

An initial step in bolstering your security is making certain the basics are in place. This includes establishing a firm security policy that dictates how the company will handle security issues, as well as a policy that addresses identity and user authentication guidelines and what exactly is permissible where usage of applications, mobile devices, and other hardware is concerned.

According to Von Williams, director of information security, audit, and compliance at Logicalis (866/456-4422; www.us.logicalis.com), as the workforce becomes more mobile but employees still require access to critical information systems, two-factor authentication for remote workers is of utmost importance.

Strong firewall, antivirus, and next-gen malware-fighting solutions are other obvious basics to address. Williams says an enterprise's security budget is best spent on an industry-standard antivirus program. "A company not using an antivirus program is asking for trouble," he says. "It's not a case of if a company will experience an outbreak, but when that will happen."

Olds is a proponent of small to midsized enterprises using gateway appliances that combine firewall, spam filtering, anti-phishing, and other security tools into one easy-to-manage device. "Often, these devices are less expensive to acquire and require less management effort than using separate hardware and software packages to handle individual functions," he says.

✔ Stay Up-To-Date

Making certain basic security tools are in place is half the battle. The other half is ensuring antivirus systems, hardware, and anything else tied to security are continually patched and updated, including "servers that could otherwise be exposed to vulnerabilities that could be exploited, leading to a security breach," Williams says. Small to midsized enterprises can save money, he says, by looking to open-source solutions aimed at helping keep a company's environment secure.

Olds says IT should take a "maniacal" approach toward patching software and firmware. "Unpatched and unmaintained systems are the biggest cause of security vulnerabilities," he says. "The biggest trouble areas are systems on the network that haven't been maintained and patched

to the appropriate levels. There are a wide range of devices that tend to fly under the radar, including servers, desktops/laptops, and networking components. If something is on the network and can see the outside world, it can end up being a vulnerable point that can be exploited."

One possibility, Olds says, is using a network discovery tool that tracks down everything on the network and creates an inventory of items that need to be checked and that need the latest patches. "This is a good project for a new hire or intern—provided they're supervised," he says.

✔ Regulate Access To Data

Companies can go a long way toward bolstering security by simply asking who has access to sensitive data. As Williams says, "Do the people who have access to sensitive data have a level of access appropriate for them to do their jobs?" To help answer the question, companies should establish role-based access controls to permit only certain users access to sensitive data, he says.

According to Jeff Falcon, senior security solutions architect at CDW (www.cdw.com), "One of the fundamental principles of security that is often overlooked or not considered important is the principle of least privilege—granting any user access to only the data and resources essential to their own work." Often, he says, companies are unable to answer such seemingly basic questions as, "Who has access to my data? Who should have access to my data? Do you know what devices are on my network? Do you know the identities and where users can go once they're on my network?" To begin shoring up access to data, Falcon advises to "discover and classify where high-value data exists in your organization, determine who has and should have access to it, and apply the proper security controls to safeguard that data."

✔ Look Outside Yourself

For some companies, the best way to determine where a security arsenal needs the most attention and where the company can possibly save money doing so is to obtain an outside perspective, Falcon says. Commissioning a technical vulnerability assessment, for example, can "provide you with information about your network that you did not previously know about," he says. "This will lead you on the right path to effective spending for security investments, as well as show any 'quick wins' that will help you tackle the often daunting task of figuring out where to start." Further, getting the right advice from a trusted security advisor can help prioritize where speeding should be allocated first to mitigate risk.

Key to deciding whether an advisor is warranted is the enterprise first deciding if current IT staff can manage all projects, regulatory pressures, rapid fire drill responses, and other activities that deflect from daily activities without putting the company at risk. If not, Falcon says, "determine what can be leveraged as a service and what should be maintained in-house." Logicalis' Williams adds that one possibility is outsourcing firewall monitoring to a qualified security monitoring company that can "proactively monitor your perimeter for suspicious activity and make adjustments to the firewall if any are discovered." P

✔ Run A Background Check Before You Hire

"Perform background checks on all prospective employees," advises Von Williams, director of information security, audit, and compliance at Logicalis (866/456-4422; www.us.logicalis.com). "People with questionable background checks may represent a security risk," he says. "If a potential employee has been convicted of embezzlement, for example, then you probably wouldn't want that person working in accounts payable."

✔ Set Permissions & Rights

According to Jeff Falcon, senior security solutions architect at CDW (www.cdw.com), one major enterprise security trouble spot is the proliferation of endpoints and mobile devices that are poorly managed, patched, and secured. Additionally, "overexposed or excessive permissions and rights management within critical infrastructure applications like Active Directory, SharePoint, and Exchange can cause problems for enterprise security," he says.

To mitigate associated risks, use solutions that track the number of devices and endpoints by type, identity, and applications allowed in the corporate environment, he says. Further, use identity management and permissions management solutions to ensure that acceptable use of devices, applications, and permissions are monitored and enforced.

BONUS TIPS:

✔ Go Automatic

Implementing strong antivirus protection is "absolutely critical" to protecting servers and endpoints against malicious code and viruses, says Von Williams, director of information security, audit, and compliance at Logicalis (www.us.logicalis.com). To that end, install antivirus software that automatically downloads and deploys signature files all the way to the endpoints, he says. Additionally, he suggests installing an application that checks and downloads available security patches and installs applicable patches on servers.

✔ Get Physical

Shoring up physical security is something enterprises can't overlook. Here, Williams says to determine who has physical access to areas where critical business data resides and decide if they are and should be authorized. To limit access to sensitive enterprise areas, he says, install card-swipe devices.

SIX QUICK TIPS

Repair Equipment

Tips To Pick A Provider & Ensure Fast Fixes

Equipment is bound to break down at some point—it's a virtual certainty in the data center world. It could be something as inconvenient as a printer going down or something as complicated as losing an entire server. For this reason, it's important to have a hardware repair vendor ready to go that will provide the best possible service in a timely manner. Here are tips designed to help you know what to look for in a hardware repair company and make sure the repair goes as smoothly as possible.

✔ When In Doubt, Call Your Repair Vendor

If you think a piece of equipment may be malfunctioning and in need of repair, it's a good idea to get in contact with a vendor and speak to him about the issue. For example, "many times a PoS unit may show symptoms of hardware failure, and even though many companies have their own IT group, the group is more software-oriented vs. hardware troubleshooting-oriented," says Jesse Simpson, director of technical services at Pegasus Computer Marketing (800/856-2111; www.pegasuscomputer.net). "I'm not saying many IT people cannot diagnose it, but most don't have time. In many cases, it may just require a simple phone call to third-party repair facility to do a repair over the phone that prevents the user from having to send in a piece of equipment."

Calling your hardware repair vendor first could end up saving you quite a bit of money if a simple over-the-phone repair is enough to get the job done. However, in some situations, you'll need to go a little further and request either an on-premises repair or send your equipment to the facility itself.

✔ Compare Vendor Services & Reputation

Before you sign a contract or send off your equipment for repair, you should evaluate several repair vendors to make the best possible choice. The only way to get the best service and price is to compare as many different repair vendors as you can. Not all hardware repair shops offer the same services, and some might not even provide those services for your specific region. You should go beyond what types of repairs they are able to perform and focus on vendor reliability, stability, and longevity.

"Always check to see how long a company has been in business. The longer the better, and the more experienced shops lead to a better success rate," says Yuriy Petushkov, managing director of IT Hardware Repair, owned by Baynetwork (650/561-8160; www.ithardwarerepair.com). "A good repair outfit will offer a limited lifetime warranty on all repairs completed or parts replaced and, just as with any other solid business, a good repair shop has good

recommendations, referrals, and positive customer feedback."

You should also speak to a service rep or engineer to get a feeling on technical knowledge, Petushkov says. It's helpful if a repair representative can diagnose technical problems quickly and have an idea of how to fix it before they even step on your premises or receive your shipped equipment.

✔ Prepare Your Data Center For An Onsite Repair

Once you select a hardware repair vendor and decide that an on-premises repair is necessary, there are a few ways you can prepare for the incoming repair specialist that should help the repair process go quickly and smoothly.

"If a company wants to do a repair in-house, the best way to do it is with some preparation," Petushkov says. "Create a sanitary, dust-free, clean area and provide ample workspace and a workstation; use an antistatic mat and wristband and at least a 5X magnifying low heat light; and carry an inventory of approved parts for repair, test equipment, and a nice set of hand tools, including a soldering iron."

In the case of an onsite repair, you should make sure that you have a back-up piece of equipment in place. It's also important to separate the damaged component from other working components to ensure no additional damage is done. "Using damaged gear in the same chassis or network may cause other equipment on the network or within the chassis to fail," Petushkov says. Backup solutions can help you avoid additional repairs and cut down on costs.

✔ Know When It's Time For A Replacement

In some situations, there is no quick fix for a piece of equipment, and your only real option is to consider purchasing new. Simpson says that the best time to replace equipment is "when the cost to maintain the old is equal to or beyond the cost of new." But he also adds that for some companies, it's time to consider buying new equipment when the old cost to maintain is 60% of what new would be. For companies that are looking to save money on equipment purchases, Simpson says refurbished can be a good alternative with the correct warranty provided as well as a clear understanding of what the warranty would cover compared to a new unit.

Another clear indicator that it may be time to invest in a new or refurbished solution is when a piece of equipment is being repaired for the same issue over and over again. If you're sending in damaged equipment every few months or so, the costs of those repairs will start to add up over time. It may only be a matter of time before that piece of equipment fails completely, forcing you to scramble to buy a replacement and avoid potential downtime. P

✔ When Making Repairs Yourself, Know Your Capabilities

Although it may be tempting to try to repair equipment yourself, it's important to know your limits and capabilities. "What we consider simple may be considered complex or too risky to allow an employee to handle or even a manager with limited mechanical skills to attempt," says Jesse Simpson, director of technical services at Pegasus Computer Marketing (800/856-2111; www.pegasuscomputer.net). "The cost to replace or end up having to send to a third party for a flat-rate repair is just too high to allow that," he says. With PoS equipment, for example, "most repairs, outside of just replacing batteries for mobile units and damaged cable assemblies or removing debris from printer paper paths and keyboards on PoS units, are about as deep as most companies will allow an employee to operate."

✔ Communicate & Ask Questions

You need to be in constant communication with your hardware repair vendor to ensure you are getting exactly what you're paying for. Good communication is often the sign of a reputable repair company.

"One of the hardest parts is to not know what is going on with your equipment or not being able to reach a real person when you have an emergency or need a quick answer," says Jesse Simpson, director of technical services at Pegasus Computer Marketing (800/856-2111; www.pegasuscomputer.net). "Don't be afraid to ask questions. If you ask enough questions and just do not get the answers you expect or no answer at all, run. We all make mistakes, sometimes answers are not just cut and dry, but you should know you're in safe hands and know you can trust them."

BONUS TIPS:

✔ Use Quality Repairs To Extend Equipment Life

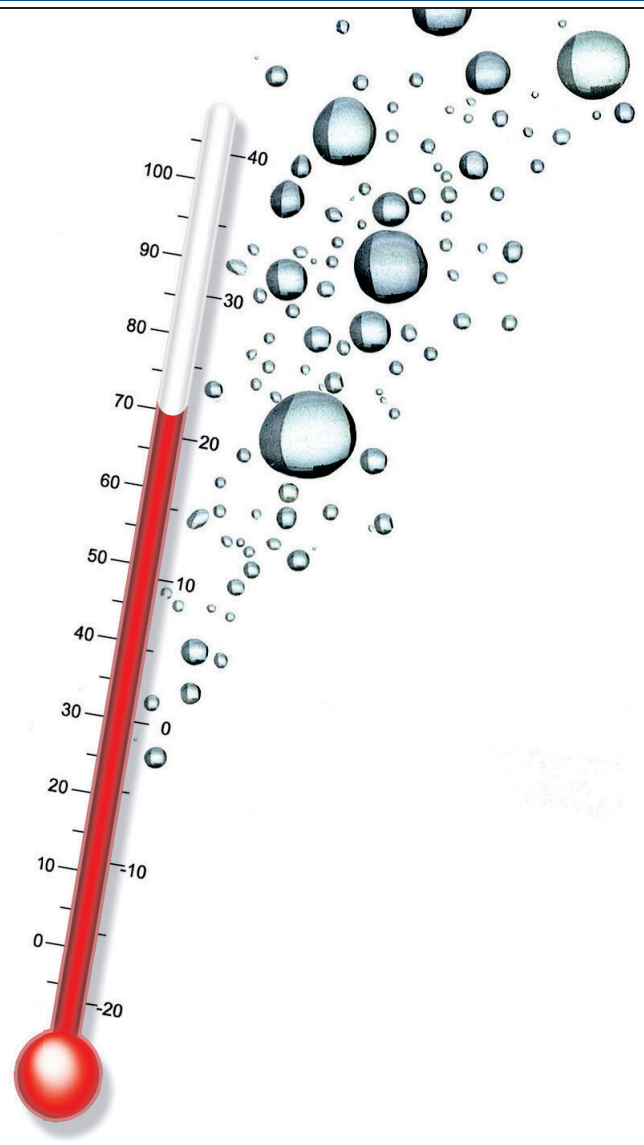
If a repair is done correctly, IT equipment will not be negatively affected and can be considered good as new, says Yuriy Petushkov, managing director of IT Hardware Repair, owned by Baynetwork (650/561-8160; www.ithardwarerepair.com). Using approved components to repair equipment so it matches original factory specs shouldn't negatively affect a product's lifecycle in any way. In fact, he says, return-to-factory specs can extend ROI years beyond initial projections.

✔ Make Sure Repairs Are Thoroughly Tested

Don't pay for any repairs that haven't even been tested, Petushkov says. It should be a vendor's policy to vigorously test equipment before any quotes are generated or before any equipment repair is considered a success.

Buying Tips:

Environmental Monitoring Equipment



Environmental monitoring offerings are not things an enterprise invests in on a whim. Every organization has unique infrastructure limitations, climate issues, and monitoring needs, so there's no one-size-fits-all solution.

✔ Define Your Goals

Jim Fink, consultant at Upsite (888/982-7800; www.upsite.com), says you need to first define your goals in implementing a monitoring system, including whether you'll be using it for troubleshooting, efficiency benchmarking and goal tracking, trend analysis, forensic analysis or other issues. "Decide which parameter must be monitored (pressure, temperature, humidity, etc.) and understand the installation and IT burden on your organization. How many IP addresses, how many monitoring points, and how much network traffic will be created. Will you use wireless or wired sensors? How will the data be presented?"

Laura Viars, senior sourcing specialist at Rackmount Solutions (866/207-6631; www.rackmountsolutions.net), says you also need to know what types of threats might occur. "The most common environmental risk is excessive heat within the cabinets, so you'll definitely want to make sure you are monitoring temperature," she says. Other potential environmental dangers include power surges/loss of power, humidity, smoke, airflow, and room/cabinet entry.

✔ Understand What's Available

With so many choices, it's tough to know where to start. Harry Schechter, founder and CEO of Temperature@lert (866/524-3540; www.temperaturealert.com), says ease of use and reliability are the two most important features to look for. "Choose a product that provides just the features you need, and this will ensure your getting something that will be intuitive to set up," he says.

When it comes to connecting monitoring equipment to the network so that it can send alerts, several options exist, Schechter says. USB, Wi-Fi, and Ethernet remain popular, but there are also newer infrastructure-independent devices based on cellular phone connections.

A state-of-the-art environmental monitoring system is nothing without notifications. Bob Douglass, vice president of sales and marketing at Sensaphone (877/373-2700; www.sensaphone.com), says, "The primary motivation for adding an environmental monitoring system is to know when you have a problem as soon as possible." Common notification options include email, LEDs, audible alarms, beacons, sirens, Web alerts, SNMP, automated phone calls, and SMS.

✔ Ensure Ample Coverage

Consider the room size and amount of equipment to be monitored and plan the number and placement of sensors accordingly. "If your deployment is small, a few points of measurement may suffice, but if you have a large operation, you may require environmental measurements every few feet," says Brandon Siri, senior marketing representative at Server Technology (800/835-1515; www.servertech.com).

Also make sure you get all the components to complete the system, Viars says. "Most systems have a main console, and in addition to that, you'll need to purchase various sensors based on what you are looking to monitor specifically." Some sensors might require a power source, so consider that when planning your layout.

✔ Consider Future Support

Choosing the right solution means little if you don't have long-term support. "Look beyond the checklist and make sure that you're getting future enhancements, that you have access to support, and that the company stands behind its products" says Michael Sigourney, senior product specialist at AVTECH (888/220-6700; www.avtech.com).

✔ Keep Costs Under Control

Mo Sheikh, marketing manager of IT WatchDogs (www.itwatchdogs.com), says to be aware of hidden costs and fees. "Invest in an environmental monitoring solution that doesn't have a significant long-term cost of ownership," Sheikh says. "A long-term data center management and monitoring solution is critical to preserving an IT investment, but it should not generate recurring expenses that degrade ROI." P

Buyers' Checklist

- ✔ Do you need to monitor remote or local systems?
- ✔ Do you have wired networking or power limitations?
- ✔ What kinds of notifications do you need?
- ✔ Do you have other monitoring needs beyond environmental?
- ✔ How many and what types of sensors do you need?

Key Terms

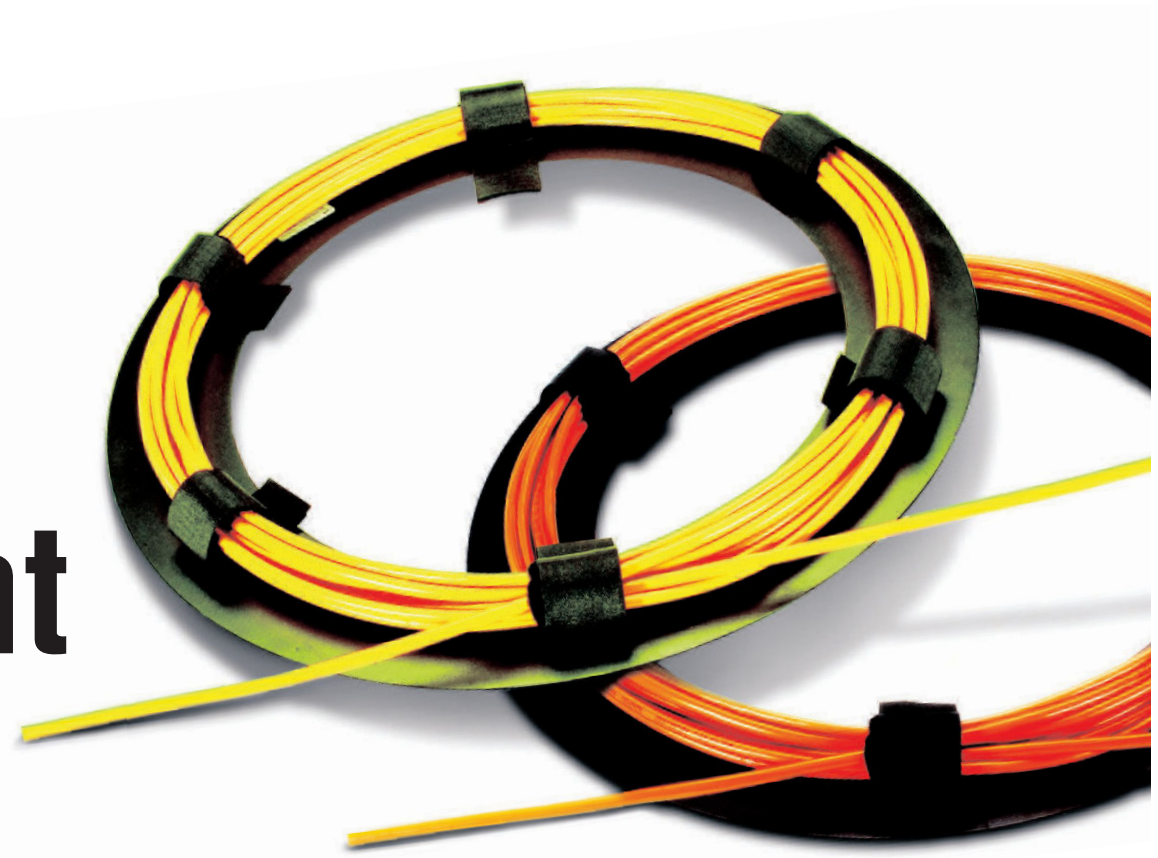
Dry contact.
Refers to an electrical contact that has no internally available voltage.

SEMS (Server Environmental Monitoring Systems).
Record and report the environmental conditions of servers and clients.

SNMP (Simple Network Management Protocol).
A network protocol that lets users monitor network availability and performance in addition to a variety of other devices such as power and cooling systems.

Buying Tips:

Cable Management Solutions



Managing cables is an afterthought. That's an unfortunate reality among many data centers, says Ken Koty, sales engineer at PDU Cables (866/631-4238; www.pducables.com). Among other things, not having a cable-management plan and guidelines makes troubleshooting problematic.

✔ Know What's Available

Brett Femrite, sales manager at Rackmount Solutions (866/207-6631; www.rackmountsolutions.net), says well-designed patch cable storage managers, which house and cover patch cords between patch panels and devices, are popular. He says they are not only functional in helping reduce cable sprawl, but they are also bend-radius-compliant and offer cosmetic appeal, as well. Other cable management options include horizontal and vertical wire managers (which can be mounted on the front or rear of your equipment rack or cabinet), cable ladders, a large assortment of cable trays and conduits, and various wire minders (rings) that can be mounted on any rack system.

Also very popular, Femrite says, are vertical and horizontal lacer bars. "These bars can be mounted on a rack or within a cabinet and have slots through which Velcro enclosures or cable wraps are routed to hold groups of cable," he says.

✔ Plan For Expansion

Laura Viars, senior sourcing specialist at Rackmount Solutions, says if you intend to incorporate more equipment in the future, ensure your cable management configuration allows for it. Do this by making certain managers (both in-rack cable managers and external trays and ladders or conduits) don't meet or exceed their fill capacities. Most management options are available in multiple sizes, she says, ensuring a fit with plenty of excess if needed.

Also seek solutions with the flexibility to add new equipment or troubleshoot an existing component. "Lean toward reusable options such as Velcro straps in lieu of cable ties and managers that allow easy access to their contents," she says. Have an idea of when you're looking to expand and by how much. If you expect rapid and near-term growth, keep cables loosely organized during implementation by cutting down on the bundling and by using managers (D-rings vs. managers with covers) offering easier access.

✔ Check Vendor Experience, Warranties & Other Factors

Because cable management systems affect a range of data center infrastructure subsystems, including airflow management and mechanical and electrical distribution, Lars Strong, senior engineer at Upsite Technologies (888/982-7800; www.upsite.com), says a vendor needs to have comprehensive knowledge of data center operations.

Vendors should have experience that matches your business size and type, warranty products and work, offer easy ordering, provide complete solutions and knowledge concerning network configurations, carry parts that fit into your existing systems, and guarantee installation and network performance.

✔ Consider Color & Labeling

Koty says when possible, use color coding to help visually identify cables quickly, simplify management, and save time when tracing cables. With data cables, use color to identify the cable's role/function or connection type. With power cables, use color to identify and organize dual-power feeds for redundant power sources.

Secure labels so they're accessible but difficult to remove. Also, maintain a spreadsheet that identifies the cables and colors, where cables come from and go, and configurations. P

Buyers' Checklist

✔ **The basics.** Laura Viars, senior sourcing specialist at Rackmount Solutions (866/207-6631; www.rackmountsolutions.net), says no matter the size of installation planned, you'll likely need basic management items such as vertical managers to bundle cable along the height of the racks/cabinets; horizontal managers to bring the cabling neatly from the drop to the equipment; and Velcro straps to bundle cables as needed.

✔ **Testing.** Pre-test all cable before installing, says Ken Koty, sales engineer at PDU Cables (866/631-4238; www.pducables.com). Once installed, it's more difficult to test and identify problems.

✔ **Think about heating and cooling.** Where heating and cooling efficiency are concerned, Koty says, using overhead racking for network and storage cables will prevent air dams forming under the floor. Also, be sure your cable management solution keeps cabling out of the way of exhaust fans in cabinets, he says.

Key Terms

Cable bend radius.
The minimum radius a cable can acceptably bend and still function as intended.

TIA/EIA.
The TIA (Telecommunications Industry Association) and EIA (Electronic Industries Alliance) provide best practice guidelines regarding cabling infrastructure.

Buying Tips:

PDUs

PDUs have evolved into integral components of a modern power distribution infrastructure, delivering correct voltage and current to multiple outlets.

Jim Fink, consultant at Upsite (888/982-7800; www.upsite.com), says that a PDU can refer to several different pieces of equipment. "Some manufacturers call the power strip mounted in the IT rack a PDU. More traditionally, PDU refers to a large floor-standing device with a rating of up to several hundred kVA that distributes power from one or more feeders to multiple branch circuits," he says.

✔ Know Your Needs

Brett Femrite, director of business development at Rackmount Solutions (866/207-6631; www.rackmountsolutions.net), says you have to do your homework prior to making a PDU purchase. "It is critical that the PDU you select match up with your power consumption needs and server/network equipment," he says.

Femrite recommends making note of the type and quantity of outlets needed and whether you can daisy-chain for added capacity. Although the ability to expand capacity might not be critical now, having the option could save money down the road. Femrite says other key factors to consider include form factor (vertical/horizontal, rack/wall-mountable, or 0U), the amperage the PDU needs to support, and the type of PDU that best serves the requirements and needs of the data center.

✔ Understand The PDU Options

"There are generally three types of PDUs: basic, metered, and switched," Femrite says. A basic PDU lacks monitoring and remote administration capabilities. The next best option is a metered PDU, which has everything a basic PDU has, but adds a meter that lets users visually track amperage and GUI management software that lets users monitor the aggregate current being drawn on each PDU in real time. Switched PDUs support everything on a metered PDU and add local and remote control capabilities on a per-outlet level. Redundancy is also important, Femrite says. A dual-circuit PDU offers added fault tolerance with two power inputs.

Fink agrees, adding, "A bare-bones PDU will have no monitoring capability, only an input feed, coupled to a panel board with a bunch of branch circuit breakers." A feature-rich PDU, though, can let you know when load on any branch circuit exceeds certain threshold values that you define or when a breaker trips. Monitoring can also include power quality information and transformer temperature alarms, he says.

✔ Account For Growth

One common mistake is getting a PDU that isn't as capable as you need it to be now and into the future. "If you don't precisely match up the PDU with your power consumption needs, taking into account anticipated growth/increases, you can wind up having a breaker tripped," Femrite says.

But, Fink says, be careful not to oversize the PDU. "Consider serving new growth zones in the data center with new PDUs when the time comes rather than from grossly oversized PDUs purchased now." Also, if you need to add branch circuits to existing PDUs without a shutdown, some PDUs allow safe addition of branch circuits while the PDU remains energized, he says. P

Buyers' Checklist

The following tips were provided by Julie Brown, marketing manager at Server Technology (800/835-1515; www.servertech.com).

✔ **Know the different types of PDUs.** What type of PDU do you need for your data center? Choose from basic, intelligent, metered, or switched.

✔ **Know your power needs, or consult an expert.** Make sure you're buying the right PDU for the job. You want to make sure that the PDU you buy matches up with your power consumption needs. If you don't know what your needs are, bring in an expert who can help you determine them.

✔ **Look for the best quality.** You want the best quality you can afford for reliability and performance to power your mission-critical equipment.

✔ **Service.** You want a PDU from a company that provides tech support and services after the sale.

Key Terms

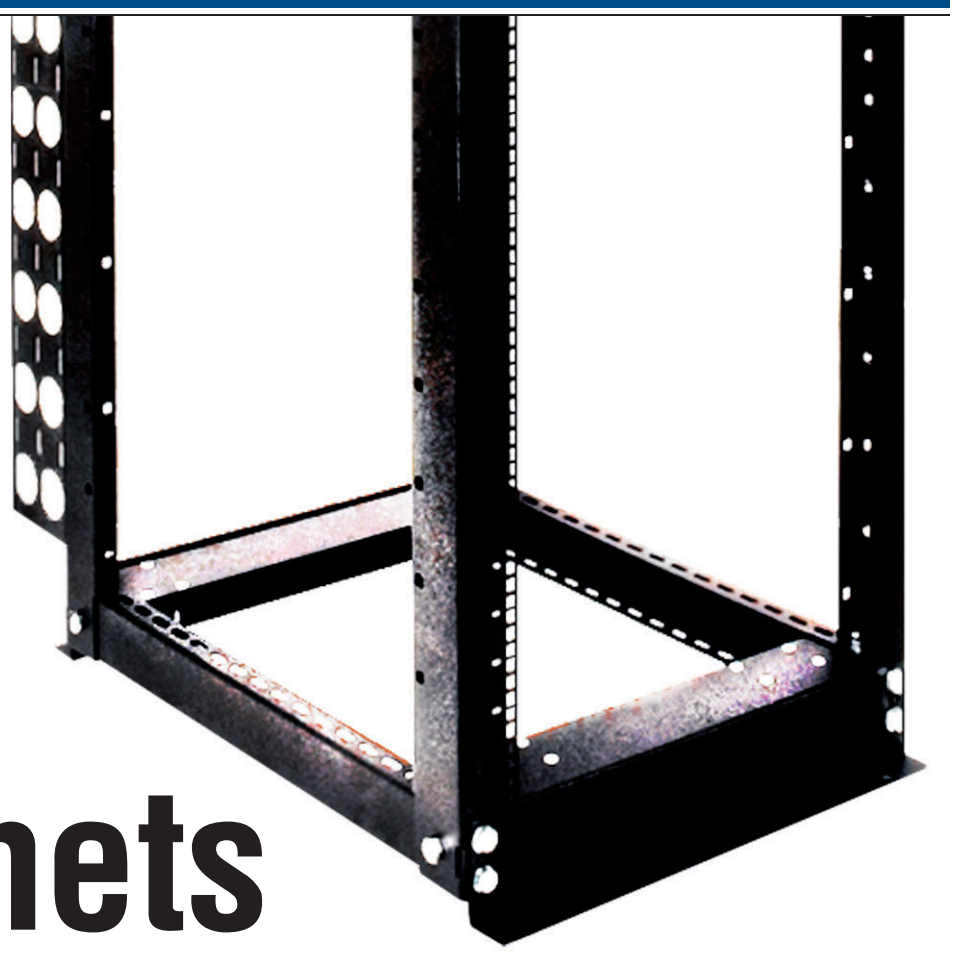
Intelligent PDU.
Any PDU that offers Web-based management, meter power at both the PDU and individual outlet level, and real-time power monitoring.

K Rating.
For PDUs with transformers, this is the transformer's ability to handle harmonics.

Metered PDU.
Can track current draw at the PDU level and display the data locally and remotely.

Poles.
The number of spaces in a panel that breakers can occupy; 42 poles is common.

Switched PDU.
Lets users remotely switch connected devices on and off; some even offer outlet management technology.



Buying Tips:

Data Center Racks & Cabinets

Racks and cabinets are built to hold and protect every piece of equipment that runs your data center. Because of that, the decision of which racks and cabinets to purchase shouldn't be hastily made. Instead, you should focus on the features most important to your company and ensure they will fulfill your needs for years to come.

✔ Know What's Currently On The Market

The first thing you should do when looking at racks and cabinets is research what's currently on the market. Companies offer full-sized 42U, midsized 26U, and 12U cabinets as well as racks with heights of 30 to 84 inches and widths of 24 to 36 inches.

Eli E. Hertz, CEO and president of Hergo (888/222-7270; www.hergo.com), says you should look for potential add-on items, such as overhead storage compartments, power and cable management solutions, and back and side panels. Different sized racks and cabinets paired with additional solutions can help you design a product that's perfect for your data center.

✔ Pinpoint Your Needs

Once you know what products and configurations are available, look at the types of physical features you need for your specific environmental needs.

"Establish what you need the cabinet to do," says Susan Wynne, senior sourcing specialist for Rackmount Solutions (866/207-6631; www.rackmountsolutions.net). "If the equipment is noisy, you may want a sound reduction cabinet. If the environment is dirty, you may need a filtered cabinet. Even the area of the country is important and you may need an air-conditioned or NEBS cabinet."

There are many other considerations you must make, including whether you have a sprinkler-based fire suppression system that requires NEMA 12 certified cabinets that keep out moisture, Wynne says. You should also consider built-in security measures, such as locked cages or other alternatives, if there is a lot of traffic in and out of your data center.

✔ Check The Vendor

Hertz says that a cabinet or rack purchase is significant and so the decision of which vendor to buy from is just as important. "You need to make sure that the supplier they have chosen has been in business long enough to have an established reputation in the market," he says.

Hertz says companies should be able to "grill the supplier on what they are actually going to be getting," and the vendor should be able to answer those questions by knowing "the product from nuts to bolts." Think of the vendor as a partner in the purchasing process and make sure it gives you enough information to make the best possible decision.

✔ Get The Right Fit

In most cases, you've already decided which pieces of equipment to buy for your data center before you start shopping for the racks and cabinets to store them in. It's a great opportunity to measure each piece and come up with a mock configuration for how it will fit into the rack or cabinet.

"This ensures the cabinet is tall enough, wide enough, and deep enough to handle the longest piece of equipment to be populated into the cabinet," Wynne says.

But don't let internal space be your only focus, because the amount of space the rack or cabinet takes up is equally important. "Make sure the outside dimensions of the cabinet will fit in the designated location," she says. Whether you are purchasing multiple racks and cabinets to fill a brand new data center or buying one to fit into an existing setup, it's important to know every dimension. And make sure you leave adequate space for expansion in the future. If you don't, you could get stuck with a cramped and inefficient data center with no room for evolution. P

Buyers' Checklist

- ✔ Is cable management built in, or does the rack or cabinet leave adequate space to neatly route cables?
- ✔ Does the rack/cabinet provide PDU mounting options?
- ✔ Does the cabinet include PDU mounting brackets?
- ✔ Does the equipment you're mounting require tapped or M6 holes?
- ✔ Will you need to disassemble the rack/cabinet to get it in the room?
- ✔ Is the cabinet lockable to prevent potential security issues?

Key Terms

M6 holes.
Square holes common with rackmount equipment and server cabinets; they can be adjusted to a round hole with a cage nut.

Rackmount units (RMU).
Cabinets and racks are measured in rackmount units, with each RMU, or U, equivalent to 1.75 inches.

Buying Tips:

Data Center Infrastructure Management

Increasingly, data center managers are eyeing DCIM (data center infrastructure management) solutions for the numerous benefits they can afford by providing a holistic view of data center and facilities infrastructures. Here are some of the key elements to consider when purchasing a DCIM solution.

✔ Know What DCIM Can Do

DCIM solutions enable IT to view real-time power and temperature usage data on a granular level and provide monitoring, management, automation, optimization, and capacity and budget planning capabilities, all of which lead to the streamlining of operations and improving energy consumption and overall efficiency. DCIM solutions can replace spreadsheets, paper records, CAD drawings, and similar tools traditionally used to track assets. Instead, enterprises gain real-time, in-depth views into physical and IT assets and can use the related data to develop what-if scenarios for capacity planning.

Paul Goodison, CEO of Cormant (www.cormant.com), points out that DCIM solutions enable synchronization of various aspects of data center, IT, and facilities management into one trusted solution, which makes adopting new processes straightforward and helps reduce cost, rework, and tension within and between facilities and IT staff.

✔ Determine Your Needs, Then Evaluate Competitors

Because DCIM is a hot topic, Goodison says, numerous vendors have surfaced with DCIM-branded solutions. "Regardless of how you define DCIM, I think it's fair to say they can't all be DCIM solutions, but we can assume they probably do manage/document some aspect of the data center."

Goodison says the question is whether a particular solution will do what you want and need it to. "Properly define your needs so that you understand which solution best fits those needs when you evaluate the competitive landscape."

When comparing solutions, consider what your greatest need is and your ability to fully use the platform's tools. For example, determine whether you have the resources in place to address issues the DCIM solution uncovers and change the facility or operating procedures to enable improvements.

The maturing of the DCIM market means there are products suitable for even small enterprises. When evaluating vendors, look for ones that have forged strong links with the leading enterprise IT management vendors. In some cases, your existing power vendors may offer solutions. This would be a good starting point as you already trust them as vendors.

✔ Seek An Easy Migration

Rather than recreating the wheel, seek out a DCIM solution that supports easily migrating existing data to the new system, says Brett Femrite, director of business development at Rackmount Solutions (866/207-6631; www.rackmountsolutions.net). For example, if you're maintaining multiple spreadsheets, CAD drawings, and other diagrams, he says, "migrating that information into the DCIM solution easily will be a lifesaver. Automation is key."

The solution should allow managers to start small and work up to added levels of sophistication in phases, he says, adding that "Flexibility can breed complexity, and while a full-featured DCIM solution can seem complicated, getting started doesn't have to be." A modular solution that enables initially buying what's needed and layering in additional features gradually is a nice benefit. P

Buyers' Checklist

- ✔ **Plan for the future.** A DCIM solution should support capacity and optimization planning, offering tools that help "determine future requirements for power, cooling, floor space, rack space, and contingency planning," says Brett Femrite, director of business development at Rackmount Solutions (866/207-6631; www.rackmountsolutions.net).
- ✔ **Check for imports.** Know that a foolproof solution for discovery and data import into any DCIM solution doesn't exist, says Paul Goodison, CEO of Cormant (www.cormant.com), but solutions with mobile components enable auditing against imported/discovered records and quicker and (usually) easier build-out of accurate data.
- ✔ **Verify.** Solutions with network-query options for communicating with networked infrastructure provide a level of verification against imported data, but audited records are still required, Goodison says.

Key Terms

Point solutions.
Many DCIM vendors offer only one or two DCIM components, or points, rather than an entire suite of DCIM tools.

Simple tools.
Spreadsheets and diagrams are examples of simple tools that managers have historically used to monitor data center assets. Some DCIM solutions can import data from these tools and automatically perform an initial discovery of asset-related data.

BUYING TIPS:

Equipment Recycling & Disposal

THERE COMES THE TIME WHEN enterprise equipment becomes outdated, needs to be replaced, or is simply no longer of use. Such situations require getting rid of the old to make room for the new. One option for dealing with old equipment is reusing it in another capacity, such as repurposing a once high-end server for an application that doesn't demand mission-critical performance. Another option is using a vendor that specializes in refurbishing, recycling, and disposing of old equipment.

In addition to handling equipment in an environmentally responsible manner, a vendor can ensure you abide by privacy and compliancy regulations. When it comes time for you to find an equipment recycling and disposal vendor, the following advice can help.

✔ Brokers vs. Service Providers

When comparing vendors, know that there's a difference between providers of recycling and disposal services and brokers. "Most companies represent themselves as the actual recycler or disposal company," Hutton says, but many are brokers that only sell products to others without touching the products. This increases security risks and lowers the return on your surplus assets. By using a vendor that actually provides the service, Hutton says, you can expect high return, not just another added layer of costs.

✔ Check For Qualifications

Selecting a trustworthy vendor is a must. Norm Hutton, head of sales and acquisitions at WeBuyUsedTape.net (800/821-1782; www.webuyusedtape.net), says to be sure a vendor is reputable and stable. Has the vendor been around a while? Can it provide references within your industry? Does it answer all questions and concerns? Will it provide documentation up front? Is the vendor compliant with policies and government regulations pertaining to your industry? What type and amount of insurance can it provide?

✔ Check The Facilities & Processes

Ask prospective vendors if you can physically inspect their facilities, what security and surveillance they use, how they can assist with ROI for current projects, and what documentation processes they use.

Be sure to find out how equipment is picked up and handled, who pays for shipping and transport, how equipment is processed and how long it takes, where equipment winds up, when you will get paid, and if the vendor can assist in other ways such as providing new products or offering credit from old equipment. You also should check what current accounts the vendor has and if it uses downstream vendors and who they are.

✔ Onsite Or Offsite Destruction?

With data destruction, you have two choices: onsite or offsite. With an onsite service, you'll remove the need to deal with a chain of custody documentation. For data centers that store a lot of sensitive data and want to physically destroy the data, you'll enjoy the peace of mind that comes with watching the destruction take place.

If you want absolute destruction that's beyond any type of recovery, an offsite data destruction service may be ideal as service providers typically have more powerful shredders at their facilities than mobile shredder services can offer, plus a number of offsite data destruction services also double as a reprocessing center that can remarket the parts, so you can get some return value for your used equipment.

KEY TERMS

Data wiping.
A process used for compliancy and privacy reasons in which data is entirely destroyed or erased from equipment such as hard drives.

Refurbished for reuse.
Old equipment that has been restored to be resold or donated for continued use rather than recycling individual components.

BUYERS' CHECKLIST

- ✔ **Homework.** Compile a list of equipment you no longer need, determine its resale value, what businesses might purchase the equipment, and how the resale value can help fund new purchases.
- ✔ **Qualifications.** Determine how long the prospective vendor has been in business, what its reputation is in the industry, and what compliancy and certification measures it operates by and has achieved.
- ✔ **Broker or provider.** Determine if the vendor actually provides recycling and disposal services or is just a broker of such services.
- ✔ **Process.** Clarify the methods the vendor uses to process equipment, including who handles equipment, where it goes, how long processing takes, and what documentation you can expect.

PROCESSOR

Network With Your Peers

At These IT Training & Association Meetings Across The United States

SEPTEMBER

AITP Akron
Sept. 25
Akron, Ohio
www.akron-aitp.org

Data Center World
Sept. 30-Oct. 3
Gaylord Opryland
Nashville, Tenn.
www.afcom.com

OCTOBER

Interop New York
Oct. 1-5
Javits Convention Center
New York, N.Y.
www.interop.com

AITP Pittsburgh
Oct. 8
5 to 8 p.m.
Silvioni's Restaurant
2125 Babcock Blvd.
Pittsburgh, Pa.
www.aitp-pgh.org

AITP Northeastern Wisconsin
Oct. 10
Radisson Hotel and Convention Center
2040 Airport Drive
Green Bay, Wis.
new.aitp.org

AITP National Annual Meeting of the Members and Region 5 Fall Technology Conference
Oct. 10-11
Radisson Hotel and Convention Center
(adjacent to the Oneida Casino)
2040 Airport Drive
Green Bay, Wis.
www.aitp.org/region5

AITP Washington, D.C.
Oct. 11
Alfio's La Trattorio Restaurant
4515 Willard Ave.
Chevy Chase, Md.
www.aitpdc.org

Containment Systems & Benchmarking Data Center Infrastructure (AFCOM Omaha)
Oct. 11
8 to 11 a.m.
Bass Pro Shop
2901 Bass Pro Drive
Council Bluffs, Iowa
www.afcomomaha.org

AITP Cornhusker
Oct. 18
5:30 p.m.
Lincoln, Neb.
www.aitp.org/members/group.asp?id=75767

AITP San Diego's 4th Annual Cloud Computing Conference
Oct. 18
8 a.m. to 4:30 p.m.
San Diego Del Mar Hilton
15575 Jimmy Durante Blvd.
Del Mar, Calif.
www.sdcloudcomputing.com

ISSA Baltimore
Oct. 24
Concurrent Technologies Corp.
8530 Corridor Road
Savage, Md.
www.issa-balt.org

WPDevCon
Oct. 24
San Francisco, Calif.
www.wpdevcon.net

AITP Akron
Oct. 30
Akron, Ohio
www.akron-aitp.org

Upcoming IT Events

NOVEMBER

AITP Washington, D.C.
Nov. 8
Alfio's La Trattorio Restaurant
4515 Willard Ave.
Chevy Chase, Md.
www.aitpdc.org

San Diego Technology Symposium
Nov. 8
5775 Kearny Villa Road
San Diego, Calif.
www.scalematrix.com/sdtech

AITP Pittsburgh
Nov. 12
5 to 8 p.m.
Silvioni's Restaurant
2125 Babcock Blvd.
Pittsburgh, Pa.
www.aitp-pgh.org

AITP Northeastern Wisconsin
Nov. 14
Holiday Inn-Appleton
150 S. Nicolet Road
Appleton, Wis.
new.aitp.org

AITP Cornhusker
Nov. 15
5:30 p.m.
Lincoln, Neb.
www.aitp.org/members/group.asp?id=75767

ISSA Baltimore
Nov. 28
Concurrent Technologies Corp.
8530 Corridor Road
Savage, Md.
www.issa-balt.org

DECEMBER

Android DevCon IV
Dec. 7
San Francisco, Calif.
www.andevcon.com

AITP Pittsburgh
Dec. 10
5 to 8 p.m.
Silvioni's Restaurant
2125 Babcock Blvd., Pittsburgh, Pa.
www.aitp-pgh.org

AITP Washington, D.C.
Dec. 13
Alfio's La Trattorio Restaurant
4515 Willard Ave.
Chevy Chase, Md.
www.aitpdc.org

ISSA Baltimore
Dec. 19
Concurrent Technologies Corp.
8530 Corridor Road
Savage, Md.
www.issa-balt.org

AITP Cornhusker
Dec. 20
5:30 p.m.
Lincoln, Neb.
www.aitp.org/members/group.asp?id=75767

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Processor Solutions Directory

Here are brief snapshots of several companies offering products designed for the data center and IT industry. Listings are sorted by category, making it easy for you to find and compare companies offering the products and services you need.

You can find more detailed information on these companies and the products they offer inside this issue.

To list your company and products, call (800) 247-4880.

Physical Infrastructure

MAINLINE COMPUTER PRODUCTS®

Mainline Computer Products has been in business since 1986 and has one of the nation's largest selections of LAN furniture, command centers, and server cabinets. We can serve companies of all sizes, including educational institutions and city, state, and federal government agencies. In addition to offering data center equipment, we can assist in the planning, design, construction, and design/build process.

Products Sold:

- Command consoles
- Server cabinets
- Computer room equipment
- UPS and PDU systems
- Access flooring
- Technical furniture

(800) 686-5312 I www.mainlinecomputer.com

Physical Infrastructure

BayTech®

BayTech was founded in 1976 and, since the 1990s, has developed unique products for remote power management. The company uses printed circuit board instead of wires for a better, more resilient connection between the data center equipment and the receptacle. BayTech provides an extensive Web site with brochure downloads, warranty information, and reseller support and also offers evaluation units for data centers.

Products Sold:

- Power control, distribution, management, and metering
- Power transfer switches
- Console management and remote site management

(800) 523-2702 I www.baytech.net

Physical Infrastructure

Server Technology
Quality Rack Power Solutions

Server Technology is committed to the PDU market with the largest group of engineers dedicated to power distribution and other solutions within the equipment cabinet. Advancements in device power monitoring help data centers monitor and improve their efficiency, and continuous research and development is fueled by companies that look to Server Technology for their custom cabinet power solutions.

Products Sold:

A complete line of cabinet PDUs, including Per Outlet Power Sensing (POPS), Rack Mount Fail-Safe Transfer Switch, Console Port access with remote power management, Switched, Smart, Metered, Basic, and -48 VDC

(800) 835-1515 I www.servertech.com

Physical Infrastructure

METHODE®

CTI was founded by Methode Electronics in 1997 and during the past 13 years has provided data centers with innovative solutions. CTI has recently become the cornerstone of Methode's Data Solutions Group, joining forces with the Methode dataMate and OPTOKON divisions in supporting the data center and communication industries. In addition, our highly qualified professional services team can engineer and install the best solution to fit your needs.

Products Sold:

Fiber and copper cabling solutions; Smart DACs; cabinets, patch panels; asset tracking; biometric access control; optical test equipment; harsh environment network equipment

(888) 446-9175 I www.methode.com/data

Physical Infrastructure

STACO ENERGY® PRODUCTS CO.

Staco Energy was founded in 1937 and is one of the longest-lasting innovators of power products and services in the world. Our recent innovations have created the foundation for entry into the SMB data center marketplace through pioneered design and expertise. We are committed to providing you with the best tailored power solutions for your needs.

Products Sold:

A full line of UPS products, including our new FirstLine P 65 – 250kVA UPS, FirstLine PL 10 – 100kVA UPS, FirstLine BMS, and related accessories and services.

(866) 261-1191 I www.stacoenergy.com

Physical Infrastructure

SENSAPHONE®
REMOTE MONITORING SOLUTIONS

Sensaphone has been designing and manufacturing remote monitoring systems for more than 25 years and has more than 300,000 of its products in use. Sensaphone's product lineup offers a full range of devices with a broad number of features and applications designed to monitor your entire infrastructure and alert you to changes. All product engineering functions, including hardware and software design and circuit board layout and assembly, are performed at the Sensaphone facility in Aston, Penn.

Products Sold:

Remote monitoring solutions that provide email and voice alarm notification for problems related to temperature, humidity, water detection, power failure, and more.

(877) 373-2700 I www.sensaphone.com

Physical Infrastructure

MOVINCOOL®
THE #1 SPOT COOLING SOLUTION

The MovinCool division of DENSO Sales California has pioneered the use of portable air conditioning solutions for a variety of North and South American markets since 1982. MovinCool works with a national network of distributors and suppliers to provide product sales, installation, and rental.

Products Sold:

- Office Pro Portable Air Conditioner Series for indoor environments such as server and telecom rooms
- Classic & Classic Plus Portable Air Conditioner Series for moisture removal, outdoor and industrial spot-cooling
- CM Series ceiling-mounted A/C for cooling server rooms, telecom closets, or anywhere space is limited

(800) 264-9573 I www.movincool.com

Physical Infrastructure

MESTEX
A Division of Mestek Inc.
4830 Transport Drive | Dallas TX 75247

The Mestex division of Mestek is comprised of seven company brand names: Applied Air, LJ Wing, Aztec, Alton, Temprite, Koldwave, and Sierra. Mestex is involved in emerging technology and product research focused on using energy and water more efficiently, including ways to improve data center efficiency by using outside air, evaporative cooling, and optimized DDC control schemes.

Products Sold:

- Mechanical and evaporative cooling products
- Heating products
- Outside air tempering products
- Packaged evaporative cooling solutions for mission-critical applications

(214) 819-5262 I www.mestex.com

Physical Infrastructure

AMERICOOL
AIR CONDITIONING

AmeriCool, Inc. is the official sales, marketing, and distribution company for Weltem Air Conditioning products in North America. Our AmeriCool portable air conditioners are built to the highest standards in the industry and offer unbeatable performance, reliability and value. With products ranging from 1 to 5 tons we offer air conditioning solutions to companies small and large. Due to the wide operating range of our product, 24/7 cooling capability and rugged design, our product is a great solution for mission critical needs and harsh industrial applications.

Products Sold:

- Portable Air Conditioning Units

(800) 680-0725 I www.americoolinc.com

Physical Infrastructure

PDUs direct

PDUsDirect.com is a Master Distributor of select Server Technology PDUs for server and networked environments. PDUs Direct's basic, metered, and switched Rack PDUs provide local and remote power management, power monitoring, and environmental monitoring. We pride ourselves in offering industrial-grade quality products at the lowest prices, with the fastest shipping (most orders shipped within 24 hours) and simplest purchase process. We are the Power Behind the Business.

Products Sold:

A complete line of metered and basic PDUs, and 20A switched PDUs.

(888) 751-7387 I pdusdirect

Physical Infrastructure

AVTECH

AVTECH Software, founded in 1988, is focused on making the monitoring and management of systems, servers, networks, and data center environments easier. AVTECH provides powerful, easy-to-use software and hardware that saves organizations time and money while improving operational efficiency and preparedness. AVTECH products use advanced alerting technologies to communicate critical status information and can perform automatic corrective actions.

Products Sold:

A full range of products that monitor the IT and facilities environment, including temperature, humidity, power, flood, room entry, and UPS

(888) 220-6700 I www.AVTECH.com

Physical Infrastructure

COMPU-AIRE INC.
Specialized Environmental Air Conditioning Systems

Compu-Aire Inc. has been providing quality specialty air conditioning equipment since 1980. We offer products employing the latest state-of-the-art control and energy management technology and work with you to design HVAC systems that can save you money. Our engineered flexibility allows you to fine-tune your HVAC system to meet the specific requirements of your application, resulting in lower installed and operating costs, high energy efficiency, quiet operation, superior indoor air quality, and low-cost maintenance and service.

Products Sold:

Ceiling mount, floor mount, wall hung, console, and in-row air conditioning systems.

(562) 945-8971 I www.compu-aire.com

Physical Infrastructure

LINDY®
CONNECTION PERFECTION

LINDY USA specializes in cables, adapters, electronics and accessories for computer, networking and audio video applications. Since 1932 Lindy has supplied high quality interconnects to customers in commercial, telecom and residential markets. What sets us apart is our complete dedication to innovation, performance and reliability. Our cabling products are truly outstanding.

Products Sold:

• Networking Products • Audio / Video • KVM • Sharing, Converting, Extending • USB and FireWire • Input Devices • Add-On Cards • Hardware and Security • Power • Cabless • Adapters and much more!

(888)-865-4639 | www.lindy-usa.com/

Physical Infrastructure

Rack Solutions®

RackSolutions has been serving the data center market for more than 10 years. All of our products are designed, engineered, built, and shipped under our own roof. We have product solutions available for every major OEM, but if one of our existing products doesn't fit your needs, our top-notch mechanical and electrical engineers can create the item you need from scratch, solving even the toughest installation design challenges. Best of all, we typically don't charge up-front fees for design services.

Products Sold:

Computer server racks, cabinets, shelves, and mounting products.

(888) 903-7225 I www.racksolutions.com

Physical Infrastructure

RACKMOUNT SOLUTIONS

Rackmount Solutions' mission is to listen to the IT engineer's specific needs and deliver superb-quality, high-performance products through continuous product innovation and operational excellence. We pride ourselves in providing quality customer service, products that fit your IT requirements, and solid value for your money.

Products Sold:

- Wallmount and server racks and cabinets, including sound proof, air conditioned, and large cable bundle
- Desktop/tabletop portable racks
- Shockmount shipping cases
- Bulk cable

(866) 207-6631 I www.rackmountsolutions.net

Physical Infrastructure

POWER ASSURE

Power Assure helps enterprises, government agencies, and managed service providers gain the insight, knowledge, and automated control necessary to improve data center capacity, service levels, and power usage. The company counts ABB, Dell, IBM, Raritan, and VMware as partners.

Products Sold:

Dynamic Power Management & Optimization software that replaces "always-on" data center operations with a more efficient "on-demand" model aimed at cutting power consumption by 50 to 60%.

(408) 980-1900 I www.powerassure.com

Physical Infrastructure

SIMPLEX™
ISOLATION SYSTEMS

Since 1979, Simplex Isolation Systems has been setting new design standards in modular expandable cleanroom components, isolation curtains, hardware, and new product development. Fontana, Calif.,-based Simplex's unique strip doors and mounting systems are designed for quick installation. Simplex parts and materials perform with optimum efficiency, last longer, and save you money. And with Simplex, you are always backed by industry expertise, product knowledge, and the best warranties in the market.

Products Sold:

- Cleanrooms
- Enclosures
- Strip doors
- Curtains

(877) 746-7540 I www.simplexisolationsystems.com

Physical Infrastructure

hergo®
TECHNICAL WORKSPACE SOLUTIONS

Based in New York City, Hergo Ergonomic Support Systems is an independent designer and manufacturer of enclosure cabinet solutions, technical computer furniture, and modular racking systems. The company's products are designed to promote organization in the workspace and to increase the productivity of computers, peripherals, and communications equipment. Hergo is known for its high-quality products and superior customer service.

Products Sold:

- Racks
- Enclosures/cabinets
- Motorized workstations
- Flat-panel arms
- Computer desks
- Cable management
- Power management

(888) 222-7270 | www.hergo.com

Physical Infrastructure

LOGICALIS
Business and technology working as one

Logicalis is an international IT solutions and managed services provider with a breadth of knowledge and expertise in:

- Communications and collaboration
- Data center services
- Cloud services
- Managed services

We enable you to make your business successful through technology. We help you make the most of your resources -time, people, and money.

Logicalis has operations in the US, UK, Germany, South America, and Asia Pacific.

(866) 456-4422 I www.us.logicalis.com/hphe

Physical Infrastructure

HM CRAGG
Quality People. Quality Power.

As an integrator and master distributor providing quality power solutions, HM Cragg has built a reputation as the company that delivers innovation to aid and satisfy its customers. HM Cragg was founded in 1968 and is 100% employee-owned, focusing on quality people and exceptional products.

Products Sold:

- AC and DC power solutions (UPSes, power distribution)
- Control and monitoring (environmental and power)
- Connectors and cables (cord sets, ePDU cables)
- Cooling (air flow management, portable cooling)
- Racks and enclosures (standard racks, battery racks)
- Safety equipment (spill containment, safety signs)

(800) 672-7244 I www.hmcragg.com

Physical Infrastructure

LANSTAR

LANSTAR is a worldwide supplier and manufacturer of durable and innovative Technical furniture. All LANSTAR systems are expertly engineered to be interchangeable providing unparalleled flexibility and value. Our Professional staff, with a consultative sales approach, has been designing and providing solutions that are space effective and increase efficiency in the network environment. Let LANSTAR customize your system to fit virtually any need.

Products sold:

- Computer cabinets
- Rackmount cabinets
- LAN racks
- KVM switching
- USB port blockers
- Raised flooring
- PDU's
- AV swithces

(800) 474-3947 I www.lanstar.com

Physical Infrastructure

PDU Cables™
Innovator in data center efficiency

PDU Cables is the leading supplier of power distribution cables assemblies to data centers in North America. PDU Cables has been serving this industry since 1981 and is the first independent cable assembly company to introduce colored conduit into the power distribution cable market, the first to get UL 478 listing, and the first to introduce the Power Cable and Equipment Configurator software tool. The company is centrally located in Minneapolis, Minn., allowing it to offer 24-hour turnaround and shipping time of just one or two days to almost any United States destination.

Products Sold:

A range of power cables, cable seals, and power cord assemblies.

(866) 631-4238 I www.pducables.com

Networking & VPN

METRIC SYSTEMS CORPORATION

Metric Systems Corporation® designs and manufactures broadband wireless networking equipment, and end-to-end solutions for government and industry. We've been in the business of manufacturing and integrating reliable industrial-grade wireless networking systems for over 25 years. Our networks are deployed around the world protecting and supporting people and machines. Our specialty is working with your unique requirements and existing infrastructure to provide a networking solution that fits your requirements, schedule, and budget.

Products Sold:

Rhino Box® Environmentally Controlled Equipment Shelters and SAFARI™ Wireless Controllers and Radio Systems.

(800) 549-7421 I www.metricsystems.com

Networking & VPN

ALVACO NETWORKS

Alvaco Networks specializes in load balancing technology. Our expertize allows us to meet the needs of any network, from basic to highly sophisticated. We have a proven track record for resolving network and balancing applications for small, medium, and large size companies.

Products Sold:

- Load Balancer Systems
- VPN Aggregators
- Cell Technology
- Access Routers
- Firewall/Broadband

(407) 574-2017 I www.alvaco.com

Storage

OCZ Technology

The OCZ Technology Group has been offering enterprise class solutions for many years and OCZe (OCZ enterprise) represents the company's offerings that cater specifically to the unique needs of both Enterprise and OEM clients. These innovative products are designed and manufactured to solve problems and deliver improved total cost of ownership (TCO) to clients requiring enterprise class solutions.

Products Sold:

- Solid State Drives
- Power Management

(408) 733-8400 I oemsales@oczenterprise.com

Storage

WeBuyUsedTape.net

WeBuyUsedTape has been in the business of purchasing new, used, excess, and surplus magnetic media for more than 35 years. Our regulation-approved, secure data eradication processes and environmentally friendly disposal programs give organizations a safe and economic incentive for recycling used media. Customer service is one of our top priorities, backed by helpful, knowledgeable, and efficient team members. Obtain a no-obligation, confidential quote on your tape media today. Onsite data destruction available.

Services Offered:

Tape media buyback, secure data eradication, media disposal, and recycling

(800) 821-1782 I www.WeBuyUsedTape.net

Servers

CHENBRO

Chenbro is a leader in enclosure solutions, selling its products primarily to system integrators and OEM and channel partners. The company's extensive research and development efforts help it to keep its competitive edge and maintain market leadership, with special focus on thermal, EMI, and acoustic solutions. Taiwan-based Chenbro has offices in the United States, UK, The Netherlands, and China.

Products Sold:

- A comprehensive line of PC chassis, server/workstation chassis, rackmount chassis, and HDD enclosures.

(909) 947-3200 I www.chenbro.com

Storage

ABERDEEN SERVERS AND STORAGE

Founded in 1991, Aberdeen is a leading manufacturer of servers and storage options for IT departments. Aberdeen products can be found in many of today's high-tech corporations, as well as government agencies, hospitals, and universities. Aberdeen prides itself on unmatched customer service, open and honest communications, long-term commitments to working relationships, and personal and professional integrity.

Products Sold:

- Components/parts
- Servers (barebones, custom, rackmount, and storage)
- Software
- Storage (DAS, iSCSI SAN, JBOD, NAS, SAN)

(800) 500-9526 I www.aberdeeninc.com

Servers

SUPERMICRO®

Supermicro® (NASDAQ: SMCI), the leading innovator in high-performance, high-efficiency server technology ,is a premier provider of advanced server Building Block Solutions® for enterprise IT, data center, cloud computing, HPC, and embedded systems worldwide. Supermicro is committed to protecting the environment through its "We Keep IT Green®" initiative by providing customers with the most energy-efficient, environmentally-friendly solutions available on the market.

Products Sold:

- Servers
- Motherboards
- Chassis
- Network switches
- Storage solutions
- Blade servers
- GPU servers
- Embedded

(408) 503-8000 I www.supermicro.com

Clients

dtSearch® www.dtsearch.com

The Smart Choice for Text Retrieval® since 1991, dtSearch® offers over 21 years of experience in parsing and searching data. The dtSearch product line includes enterprise and developer text search products, meeting some of the largest-capacity text retrieval needs in the world. dtSearch's website offers hundreds of developer case studies and press reviews. The company has distributors worldwide, including coverage in six continents.

Products Licensed:

Text retrieval products, including:

- Desktop with Spider
- Network with Spider
- Publish (for portable media)
- Web with Spider
- Engine for Win & .NET
- Engine for Linux

(800) IT-FINDS I www.dtsearch.com

Services

DSI ® Data Specialties Inc.

Data Specialties Inc. (DSI) is a nationwide data center design-build firm with over 20 years experience. Office locations include Los Angeles, Orange County, Phoenix, Sacramento, San Diego and St. Louis, with licensing in over 20 additional states. Call 1-800-454-5164 or visit www.WeBuildDataCenters.com for more information.

We Build Data Centers Nationwide

Data Center Services:

- Design/Build
- Upgrades/Expansion
- Relocation
- Maintenance program
- Electrical/Communications cabling

800-454-5164 I wwww.WeBuildDataCenters.com

Services

IT (HR) HARDWARE REPAIR

IT Hardware Repair offers industry leading network, VoIP and telecom equipment repair services. We offer a one 1 year limited warranty on ALL products we repair. IT Hardware Repair brings complete transparency to the network computing hardware repair service industry. Extend the life of your equipment with Cisco router repair, Cisco switch repair, Juniper network equipment, Bizfon Telecom hardware and most any other IT hardware you wish to extend the life of.

Products Sold:

- IT Hardware Repair Services

(650) 561-8160 I www.ithardwarerepair.com

Equipment Dealer

newegg Business℠

NeweggBusiness is the business-to-business division of Newegg Inc., specializing in providing IT and office products. NeweggBusiness was formed in 2009 as an initiative to satisfy the growing needs of businesses, government, healthcare organizations, and educational institutions. Businesses and organizations can take advantage of features such as Net 30 Day terms, volume discounts, low-cost bulk shipping, and live inventory status.

Products Sold:

More than 60,000 office and computer products, including servers, desktops, notebooks, tablets, printers, scanners, monitors, network switches and routers, memory, motherboards, and software.

(888) 978-8988 I www.neweggbusiness.com

Equipment Dealer

PCM

In 1987, Pegasus Computer Marketing started providing mainframe products to the end-user market. What began as a sales-only organization soon adapted to offer in-house repair and refurbishment. During the past 10 years, Pegasus has focused primarily on the point-of-sale and barcode industries, buying, selling, and providing service contracts for anywhere from a few scanners to hundreds.

Products Sold:

We buy, sell, and service:

- Point-Of-Sale Equipment and POS/PC Flat Panels
- Wired and Wireless Barcode Hardware
- Kronos Time Clocks and Accessories

(800) 856-2111 I www.pegasuscomputer.net

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PROCESSOR

Data Center Cabinets

No Such Thing As One Rack Fits All

The Challenge

There are as many ways of racking servers as there are data center designers. Routing cables, power, and air can be done in a nearly infinite number of ways. Given that, it would make sense for data-centers to use racks customized to their specifications. The big guys have their own custom racks. Yet most datacenters are using standard racks, rather then custom ones.

RackSolutions' Data Center Racks eliminate all the hassles of data center racking by allowing rack customization.

1. Start with our sturdy rack frame
2. Select only the components needed
3. Customize any part of the rack to meet specific needs

Our Features
- Security panels between racks
- All doors open 180º
- Integral end of aisle doors
- Casters and levelers optional

Your Features
- Custom hieght, width, depth
- Custom wire managment
- Custom top panel
- Personalized rack logos

As seen @ INTEROP® NY Booth #911

Rack Solutions®

We design, build & ship

1-888-903-RACK (7225)

www.racksolutions.com

Toll Free: **(888) 903-7225** Fax: **(903) 453-0808** Email: **info@racksolutions.com**

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